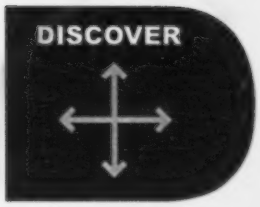


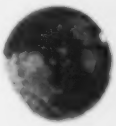
Alberta's Distributed Learning Strategy:
Learning Independent of Time, Place or Pace

Discover Phase Report:

What We Heard and Recommendations from Alberta's Distributed Learning Forum

A Culmination of All Aspects of the Discover Phase

February to December 2008



we explore
explorer

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Executive Summary

Background

Distributed Learning Strategy

The introduction of new information, communication and learning technologies has enabled Alberta teachers to support student learning and success through a variety of learning environments, any time, any place or any pace. Non-traditional learning and teaching methods have been used in selective situations to solve issues of timetabling and/or access. The Internet, global marketplace and overall emergence of distributed collaboration networks, however, have broadened the potential and forms of learning. The synchronous, teacher-centred, classroom-based, industrial model of learning has evolved to an asynchronous, collaborative, more flexible and student-centred learning paradigm—distributed learning.

Distributed learning is characterized by any learning that is purposefully designed to allow teachers, students and resources, in classroom or non-centralized locations, to interact while separated by time and/or place for some or all of their learning activities.

Students benefit from distributed learning with a range of learning options like flexible scheduling, flexible pacing and varying levels of structure depending on their personalized learning needs. These distributed learning options are provided in a variety of delivery formats and mediums—print, digital, Web-based, face-to-face—and in a variety of environments—classroom, work experience, project-based learning, online education and independent study. Distributed learning connects students, teachers, parents and the community across the province, and, in doing so, provides choice, flexibility and authentic learning experiences. It offers the potential of exploring different relationships and building highly personalized and individualized learning opportunities for student success, as well as expanding teacher expertise to critically influence and support student learning.

Although school authorities recognize the importance of collaboration to successfully provide choice, flexibility and equitable learning opportunities, typically they have acted individually in developing content, building teaching and leadership capacity, and in accessing technology services. This, coupled with limited provincial direction in coordinating this work, has resulted in the duplication of efforts, varying levels of capacity and access to technology across the province. As a result, Alberta students generally do not have equitable access to high-quality distributed learning opportunities that meet 21st century needs.

Alberta's Distributed Learning Strategy strives to develop collaborative and sustainable relationships that provide greater flexibility in accessing learning and teaching opportunities. The vision of the Strategy is that Alberta students have equitable access to high-quality learning opportunities and choices that are independent of time, place or pace. Alberta's Distributed Learning Strategy provides a strategic direction to enable 21st century learning and teaching in Alberta's ECS–12 education system. The Strategy particularly supports goals 1 and 2 of Alberta Education's 2009–12 Business Plan: 1) high-quality learning opportunities, and 2) excellence in student learning outcomes. A provincial approach to distributed learning will help ensure that the education system meets the needs of all students, our society and the economy, while also preparing students for lifelong learning, employment and active citizenship. The success of the Strategy is dependent on the interconnectedness of the following three priority actions and the achievement of their respective outcomes:

Priority Action 1: Establish provincial policy, protocol and principles for the development and delivery of distributed learning.

Priority Action 2: Create a supporting environment for continuous improvement and building teaching and leadership capacity for innovation.

Priority Action 3: Facilitate the coordination of content development efforts.

Discover Phase

The Discover Phase, which took place from February to December 2008, involved a comprehensive needs assessment, which outlined a map of the current state of distributed learning and helped to define the strengths and gaps between current and future distributed learning needs in Alberta.

This report summarizes the needs identified and recommendations provided by Alberta's education stakeholders during the Discover Phase. Stakeholder comments specifically highlight the need to move forward on a clear direction for distributed learning in Alberta.

This *Discover Phase Report* is a culmination of all aspects of the Discover Phase. It includes *What We Heard* from the stakeholder involvement process and *Recommendations* that were gathered at Alberta's ECS–12 Distributed Learning Forum. The content in these sections reflects participants' views on topics and themes reviewed during the Discover Phase and does not necessarily reflect the position of Alberta Education.

Distributed Learning Needs–21st Century Learning

Alberta's education stakeholders were engaged in a broad consultation, including an online survey (1774 responses), 62 interviews, 28 focus groups and 21 site visits. Based on the data collected and the collated perceptions on emerging trends, the Discover Phase's expert working groups and steering committee recommended that a provincial approach to distributed learning be driven by the following needs identified by Alberta's education stakeholders.

- Provincial guidelines, policy and regulations that promote flexibility and collaboration, and allow learning to take place anytime, anyplace and at any pace. This includes students' needs for choice and relevance, as well as the need for flexible timetabling and infrastructure.
- Common pedagogical and technological standards, both of which are required for effective multilateral communication and development of collaborative initiatives.
- Coordinated and comprehensive capacity building opportunities for teachers and administrators to bridge the perceived gap between teacher capacity and student needs and, most importantly, to build strong relationships between students, teachers, parents and school authorities.
- Centralized and coordinated content access, use and development to meet the diverse needs of students in a variety of learning environments. This includes the need for accessible, flexible, adaptable, and customizable learning and teaching resources.
- Equitable and ubiquitous student and teacher access to technology and reliable technology support.

Following the needs analysis, members of the expert working groups and steering committee, including Alberta Education staff and education stakeholders, explored possible structures that might exist within a provincial approach to distributed learning. The participants engaged in a scenario-building exercise, with an established facilitator to explore some of society's major drivers of change and to explore possible futures of distributed learning. Following this exercise, key success pillars were identified and further validated, at Alberta's ECS–12 Distributed Learning Forum, as the elements that would ensure the success of a provincial approach to distributed learning. The key success pillars and their respective recommendations from the Distributed Learning Forum are summarized on the following page.

Recommendations from Alberta's ECS–12 Distributed Learning Forum

Alberta Education and the Alberta Regional Professional Development Consortia (ARPDC) co-hosted Alberta's ECS–12 Distributed Learning Forum from October 20 to November 4, 2008. The online forum took place from October 20 to November 3, and the live forum took place on November 4, connecting more than 385 participants across the province through communication technologies. The goal of the Forum was to obtain stakeholder recommendations toward a provincial approach to distributed learning, given the information that had been collected through the stakeholder involvement process. Participants were asked to:

- provide long-term recommendations for consideration within a larger system-wide policy framework, and
- identify short-term activities that may take place during the 2009/2010.

The following table summarizes the stakeholder recommendations provided to the Distributed Learning project team for each of the key success pillars. The content in this report does not necessarily reflect the position of Alberta Education.

Key Success Pillar	Recommendations
A: Collaborative Leadership	Centralize leadership, where appropriate, to encourage collaboration and/or sharing between school authorities regarding content development, capacity building and the centralization of relevant technology services.
B: Flexible and Equitable Funding	Review current competitive funding practices for distance learning e.g. home education, Alberta Distance Learning Centre, as well as funding practices driven by hours of instruction and classroom size, to accommodate collaborative, provincial, distributed learning; provide targeted funding for centralization/coordination of technology access and deployment, capacity building, and collaborative content development, acquisition and availability.
C: Support Seamless Transitions between Learning Environments	Alberta Education to further collaborate with Advanced Education and Technology and post-secondary institutions to formalize agreements for flexible student programming and dual-credit delivery options.
D: Collaborative Coordination of Standardized Content Development and Shared Access	Provide centralized and public access to ECS–12 content developed in Alberta with public funds, coordinating collaborative content development efforts and establishing common content development and access standards.
E: A Culture of Continuous Improvement	Enable real-time access to centrally available student information for success of student choice, mobility and accountability and to enhance learning and teaching flexibility; continue to remove barriers to access and high school completion, transition to post-secondary or the workforce; and ensure equitability between learning environments.
F: Learning Networks for Capacity Building	Support and coordinate the development of a provincial capacity building network to define and build expertise in distributed pedagogical approaches that focus on accommodating student diversity, learning styles and authentic learning.
G: Personalized Program Design and Assessment	Support, coordinate and mandate the development of provincially accessible student-centred personalized program plans.
H: Equitable Access to Technology	Standardize and centralize relevant technologies that support distributed learning; i.e., learning/content management systems, ePortfolio hosting, social networking software and student information systems to provide equitable access to these technologies.

Background

An Alberta Approach to Distributed Learning in the 21st Century

Rationale

The introduction of new information, communication and learning technologies has enabled Alberta teachers to support student learning and success through a variety of learning environments, independent of time, place or pace. While non traditional educational environments have been used in selective situations, the Internet, global marketplace and overall emergence of distributed collaboration networks have broadened the potential and very definition of education. Distributed networks have become the norm in the workplace, and the concept of distributed learning enviornments is becoming widespread across the education system.

Pedagogies that integrate information and communication technologies can engage students in ways not previously possible. Technology-infused pedagogies have the potential to enhance achievement, create new learning possibilities and extend interaction with local and global communities. New media and emerging technologies have empowered innovative forms of expression and overall learning experiences. All of this makes possible the evolution of a synchronous, teacher-centred, industrial model of education into an asynchronous, collaborative, more flexible and student-centred learning paradigm—distributed learning.

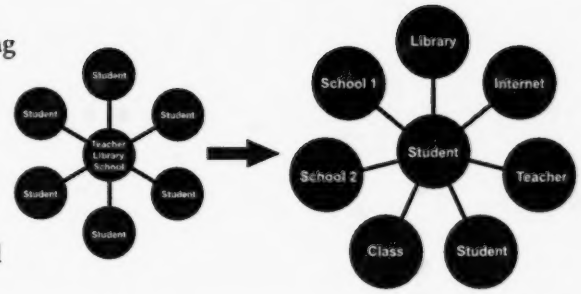
Distributed learning is characterized by any learning that is purposefully designed to allow teachers, students and resources, in classroom or non-centralized locations, to interact while separated by time and/or place for some or all of their learning activities.

Students benefit from distributed learning with a range of learning options like flexible scheduling, flexible pacing and varying levels of structure depending on their personalized learning needs. These distributed learning options are provided in a variety of delivery formats and mediums—print, digital, Web-based, face-to-face—and in a variety of environments—classroom, work experience, project-based learning, online education and independent study. Distributed learning connects students, teachers, parents and the community across the province, and, in doing so, provides choice, flexibility and authentic learning experiences. It offers the potential of exploring different relationships and building highly personalized and individualized learning opportunities for student success, as well as expanding teacher expertise to critically influence and support student learning.

Because it supports inquiry-based learning in and between classrooms, homes, communities and beyond, distributed learning is essential to fostering 21st century skills. It enables closer cooperation and shared responsibility among educational agents (students, parents, counsellors, industry, schools, and higher education) via virtual communities and less formal exchange mediums. It has the potential to redefine pedagogical models by breaking down barriers of time and location, enabling students to access information in a self-paced, exploratory fashion, as well as to create knowledge through virtual communities and knowledge webs.

Students' and teachers' worlds are being increasingly shaped by their abilities to acquire, communicate, access and manipulate information while responding creatively to the demands of today's workplace. Alberta's challenge is to prepare students to participate as global citizens and be productive and innovative in the workplace of the future.

Such preparedness requires knowledge and skills including, as examples, decision-making under uncertainty, just-in-time learning, information management, systems thinking, creativity and collaboration. Distributed learning has the potential to provide this preparedness by moving to a model that places the student at the centre, and enables flexible access to people and information.



Distributed learning assumes that learning is student-centred, that the teacher is the designer and facilitator of the learning experience and environment, and that the content is accessed from a variety of sources. It also assumes that classes may be made up of face-to-face and/or virtual communities of learners where location is no longer restricted to the classroom, and where time spent on learning varies depending on the student's schedule, learning style and/or needs.

Although school authorities recognize the importance of collaboration to successfully provide choice, flexibility and equitable learning opportunities, they have typically acted individually in developing content, in building teaching and leadership capacity and in accessing technology services. This, coupled with limited provincial direction in coordinating this work, has resulted in the duplication of efforts and in varying levels of capacity and access to technology across the province. As a result, Alberta students today generally do not have equitable access to high-quality distributed learning opportunities that meet 21st century needs.

Alberta's Distributed Learning Strategy was initiated by Alberta Education in collaboration with key stakeholder groups to develop collaborative and sustainable relationships that allow learning and teaching in the 21st century to be personalized and independent of time, place or pace to the benefit of the student.

Alberta's Vision of Distributed Learning

Alberta students have equitable access to high-quality learning opportunities and choices that are independent of time, place and/or pace.

Alberta's Mission for Distributed Learning

Alberta is committed to learner success through the development of collaborative and sustainable relationships that allow learning and teaching to be personalized and independent of time, place and/or pace.

WHY? What Key Problems Are We Trying to Solve?

The following outlines the reasons why a provincial approach to distributed learning was initiated and what education stakeholders had identified in 2006/2007 as problems that need to be solved through a provincial and collaborative strategy.

1. Policy and Standards

A. **Provincial technical and pedagogical standards for development and delivery of distributed learning are not commonly understood.**
Although there are existing technical standards to ensure compatibility across school infrastructures, between school jurisdictions and for information sharing with the Ministry, these are not commonly understood by all key entities in our school system. At the same time, stakeholders have questioned the appropriateness of the Teaching Quality Standard and of the required teacher knowledge, skills and attributes if all teachers are to become proficient in distributed learning practices. Content-related standards such as those for learning and teaching resource development and intellectual property management also are unclear. Finally, current policies related to required hours of instruction and the supervision role and requirements of teachers are said to be non-conducive to the successful delivery of distributed learning.

B. **Current funding model makes effective collaboration/coordination of efforts challenging.**
The current student-based funding model is seen by some as a barrier for collaboration between schools and school authorities. Because school funding follows the student, many school authorities are generally not supportive of student transitions between schools or between school authorities, therefore reducing the potential for student choice and opportunity. The Ministry's service agreement with the Alberta Distance Learning Centre (ADLC) is being questioned by many stakeholders given the increase in virtual schools throughout the province and the increased need for distributed learning in all classrooms across the province. Stakeholders state that distance learning services similar to those being provided by the ADLC and their resident board–Pembina Hills Regional Division–also are being provided by other school authorities which are not funded in the same way. This disparity in funding creates further competition among virtual schools.

2. Leadership and Teacher Capacity

A. Lack of coordinated implementation support, professional development and preservice support to build and deepen teacher and leadership capacity for distributed learning.

It is generally perceived that our current support systems for administrators, for practicing teachers and preservice teachers does not prepare them or provide them with the resources to feel comfortable in learning environments that allow learning to be personalized and to take place anytime, anyplace and at any pace. Existing support is provided in piecemeal forms by various professional development providers and post-secondary education programs. There is perceived lack of overall coordination among these entities that inevitably leads to duplication of efforts and gaps in teacher and leadership readiness for new and emerging learning environments.

B. Limited systematic collection of evidence and student information to stimulate continuous improvements to distributed learning.

Although research is occurring across the province through various means, whether through Ministry funding or jurisdiction-led initiatives, evidence of promising practices and findings around distributed learning generally are not systematically collected, therefore preventing system-wide, evidence-based decision making in relation to distributed learning practice. Additionally, while the Provincial Approach to Student Information (PASI) project is underway, schools currently have limited ability to share important student information as students transition from one school to another; as they move from one learning environment to another, or learn from different schools or organizations.

C. Successful practices and ideas to stimulate innovation, avoid duplication and facilitate scaling up of successful experiments are often not shared.

While there are increasing efforts to build teaching and leadership capacity for innovation across the province, such initiatives generally take place independent of one-another. Although professional learning communities and communities of practice exist in various school jurisdictions, the practices shared, the ideas and resources created are often not shared system-wide. This potentially creates disparity in the expertise, knowledge, skills and attitudes of our teachers and administrators.

3. Content Development

A. Duplication of content development efforts, resulting in excessive costs for copyright, licenses and equipment purchases.

Content for teaching and learning currently is being developed by most school authorities, as well as by three Ministry branches. Teachers, administrators, parents and students can access content through a variety of means, whether it is in print format through the Learning Resources Centre, digitally through the Ministry's learning object repositories (LearnAlberta.ca, Tools4Teachers.ca), through the World Wide Web, or through a school authority or interest group such as 2Learn.ca. There are many content development efforts occurring independently that could be coordinated to reduce duplication and create stronger, more comprehensive,higher-quality content.

B. Lack of supporting technical or organizational systems to foster collaborative content development.

Since school authorities typically develop content independently, our current technical and organizational systems are not built for system-wide collaboration. School authorities and sometimes individual schools within jurisdictions have created or purchased learning/content management systems and learning portals independently, resulting in duplication of effort and hindering collaboration.

Alberta's Distributed Learning Strategy

Led by Alberta Education, and coordinated by the Program Development and Standards Division, the strategy addresses Alberta's distributed learning needs by moving from an environment in which school authorities tend to work independently, to a more collaborative mutually beneficial environment in which school authorities work together for the common good of all Alberta students. The strategy strives to develop collaborative and sustainable relationships that provide greater flexibility in accessing learning and teaching opportunities that are personalized and independent of time, place and/or pace. It aims to provide a strategic direction to enable 21st century learning and teaching in Alberta's ECS–12 education system. The Strategy particularly supports goals 1 and 2 of Alberta Education's 2009–2012 Business Plan: 1) high-quality learning opportunities, and 2) excellence in student learning outcomes. A provincial approach to distributed learning will help ensure that the education system meets the needs of all students, our society and the economy, while also preparing students for lifelong learning, employment and active citizenship.

Priority Actions and Outcomes

The success of the Strategy is dependent on the interconnectedness of the following three priority actions and the achievement of their respective outcomes as outlined below. These actions and outcomes were identified by Education in fall 2007, in collaboration with the education sector.

Priority Action 1: Establish Provincial Policy, Protocol and Principles for the Development and Delivery of Distributed Learning.

Outcomes

1a. Legislation and funding support are conducive to continuous improvement through distributed learning delivery.

1b. Minimum distributed learning delivery standards are consistently met by school authorities.

1c. Student data and information is systematically collected and accurately reports on the achievement of students learning in a variety of environments.

1d. Student achievement is enhanced through access to a range of learning options, including flexible scheduling, flexible pacing and varying levels of structure depending on student needs and learning styles.

1e. Student assessment practices are conducive to distributed learning delivery.

Priority Action 2: Create a Supporting Environment for Continuous Improvement and Building Teaching and Leadership Capacity for Innovation

Outcomes

2a. Schools, teachers, parents and industry foster 21st century learning and working by supporting learning in classrooms, in homes and in communities via distributed learning strategies and environments.

2b. There are increased distributed learning capacity building opportunities for teachers and administrators.

2c. All teachers have the skills and opportunity to incorporate distributed learning in their practice.

2d. Teachers and administrators are involved in distributed learning communities of practice through which successful practices and ideas are shared, collaboration is fostered and professional development opportunities are enhanced.

Priority Action 3: Facilitate the Coordination of Content Development Efforts

Outcomes

3a. School authorities and Education collaborate in the development of content to enhance distributed learning potential and opportunities.

3b. Content is of high quality, aligns with the programs of study, is assessable and meets the diverse needs of students in a variety of learning environments.

3c. Content developed and produced with public funds is centrally available through a single access point.

Phased Implementation Process

Initial focused discussions in 2006/2007 with Ministry staff across all divisions, the School Technology Advisory Committee, the Technology Advisory Group, and representatives from the Jurisdictional Technology Contacts, Alberta's distance learning and online schools and Distributed Learning Symposium 2007, helped clarify the need for a phased-in approach to distributed learning in Alberta, and for a comprehensive needs analysis prior to implementing a provincial solution. It was suggested that Education and its stakeholders establish a common understanding of the current environment and carefully assess Alberta's learning needs in order to begin addressing the gaps and make informed decisions toward a provincial approach to distributed learning.

Discover: February 2008 – December 2008

The Discover Phase involved the development and analysis of a comprehensive needs assessment, which outlines a map of the current state of distributed learning and helps to define the strengths and gaps between current and future distributed learning needs in Alberta. It also was used to gather feedback for a provincial approach to distributed learning that will be further considered in the Define Phase. The Discover Phase was successful with ongoing participation from and communication with stakeholders.

Define: June 2009 – April 2010

Based on Alberta's vision for distributed learning and on the needs identified in the Discover phase, further analysis of potential solutions to approximate the costs, risks and benefits will be conducted by the Ministry. A business case for a recommended solutions and a government response will be considered in light of a larger system-wide education policy framework as part of the *Inspiring Education: a Dialogue with Albertans.*

Discover Phase Overview

Purpose of the Discover Phase

The Discover Phase, which took place from February to December 2008. It involved a comprehensive needs assessment, which outlines a map of the current state of distributed learning and helps to define the strengths and gaps between current and future distributed learning needs in Alberta. Most importantly, it was designed to help create sustained commitment, and shape a common vision and future direction for distributed learning in the province.

Discover Phase Objectives

The primary objectives of the Discover Phase were to engage school authorities, Education staff, stakeholder organizations, post-secondary institutions, students, teachers, parents and industry to:

- assess the current environment
- understand the needs of all participants
- develop a variety of distributed learning possibilities to be discussed and analyzed at the Alberta ECS–12 Distributed Learning Forum
- identify strengths, challenges and implications of distributed learning possibilities from which to develop and validate short and long-term recommendations toward a provincial approach to distributed learning
- take into account the provincial dialogue with Albertans; i.e., *Inspiring Education: a Dialogue with Albertans.*

Discover Phase Context: Defining Distributed Learning

To set the context for discussions and data gathering during the Discover Phase, all participants were exposed to the same definition of distributed learning, as well as to the rationale and priority actions of the Distributed Learning Strategy. Recognizing that the meaning of the term 'distributed learning' is very broad and may be interpreted differently, focus group, site visit and interview participants were asked to react to and comment on the definition of distributed learning. These discussions provided opportunities for education stakeholders to work with the strategy's project team to build a common understanding of what is meant by distributed learning, what distributed learning might look like from a student, teacher and/or administrator perspective, and to adjust the definition accordingly.

Discover Phase Organization and Membership

The organizational structure for the Discover Phase was comprised of a project sponsor (Assistant Deputy Minister, Program Development and Standards Division), an advisory committee, a steering committee, a project team and four expert working groups. These expert working groups focused on four key areas:

- Teaching and learning practice
- Technology
- Resource development
- Governance and leadership

All committees and expert working groups included a balanced number of members from Alberta Education, school authorities, stakeholder groups, key interest groups, teacher representatives and parent representatives. These members played a key role in designing the stakeholder involvement process, conducting focus groups and site visits, analyzing the data and defining possible futures for distributed learning, which were discussed further at Alberta's ECS–12 Distributed Learning Forum.

Discover Phase Process

The information in this report represents the information gathered primarily from education stakeholders as part of the Discover Phase of Alberta's Distributed Learning Strategy. It represents stakeholder views which will help inform future planning. The following illustrates the Discover Phase process from May to November 2008.

Involved Stakeholders

1. Identified the focal issue/question:
What structures do we need in place to support effective distributed learning in Alberta?

2. Collected data on the current situation, emerging trends and recommendations for possible structures that need to be in place to ensure that Alberta students have equitable access to high-quality learning opportunities and choices that are independent of time and/or location.

Pulled Together What We Heard

3. Conducted a literature summary and reviewed the information collected from the stakeholder involvement activities for key themes and emerging trends that could provide clues to possible futures.

4. Analyzed, compiled and summarized research data and literature to allow for the exploration of scenarios and possibilities for a provincial approach to distributed learning.

Explored Possible Futures

5. Clustered data and looked for patterns and major drivers of change to explore four scenarios of possible futures.

6. Identified key success pillars to be used as a framework in discovering the possibilities that might exist within a provincial approach to distributed learning.

Alberta's ECS – 12 Distributed Learning Forum: Discovering Possibilities

7. October 20 to November 3, 2008: Online Forum
Discussed implications of distributed learning possibilities and set the stage for the live Alberta ECS–12 Distributed Learning Forum on November 4.

8. November 4: Alberta's ECS–12 Distributed Learning Forum
Identified short-term activities that need to take place and provided long-term recommendations for consideration within a larger system-wide policy framework.

The stakeholder involvement activities included:

- **An Online Survey:** This survey had 1774 total respondents (English and French). Potential respondents were contacted through open invitations to all school jurisdictions that encouraged involvement of current distributed learning stakeholders and non-users of distributed learning. Of the 1774 respondents, 16% were administrators and 84% were teachers. 16.5% were from school Zone 1, 23.5% from Zone 2/3, 15% from Zone 4, 29% from Zone 5 and 11% from Zone 6. Five percent of respondents did not specify a particular school zone. Also, while 41% of respondents reported that they are currently involved in distributed learning as it is defined by Alberta Education, 8% of respondents reported that they are involved in an online/virtual school, outreach/storefront school or blended (home education) program.

- **Focus Groups:** There were 28 focus groups, which included a total of 645 participants. These focus groups included teachers(19%); principals(12%); home educators(2%); Treaty 6, 7 and 8 First Nations educators(3%); curriculum coordinators(15%); school authority technology contacts (6%); interministry representatives from Advanced Education and Technology and from Employment and Immigration(1%); Alberta Education staff(3%); Special Education administrators/coordinators(5%); professional development providers (6%); Preservice teachers from the University of Calgary and the University of Lethbridge(6%); and representatives from Francophone school authorities(6%), industry (1%), private schools (1%), the College of Alberta School Superintendents (CASS)(11%), the Alberta Teachers' Association(4%), the Alberta School Boards Association(6%), the Alberta School Councils' Association(2%) and students from all zones(6%), including students from an institutional program for students at risk(2%). All student participants, with the exception of those in the institutional program, had been involved in some sort of distributed learning activity.

- **Site Visits:** There were 21 school site visits spanning all six zones in the province. These included virtual schools offering primarily online/distance courses and 14 regular schools that were involved in distributed learning and had related promising practices to showcase. Over 100 students were also consulted during site visits.

- **Interviews:** There were 62 interviews, including 21 parents, five technology vendors, 16 professional development providers, 12 post-secondary professors/administrators and 13 distributed learning experts from across Canada. The experts included representatives from the National Research Council–Institute for Information Technology and from education ministries in Prince Edward Island, British Columbia, the Northwest Territories, Ontario and the Yukon. They also included researchers from the University of Manitoba, Mount Royal College, La Cité collégiale and the Centre for Distance Learning and Innovation in Newfoundland and Labrador.

Further details on the stakeholder involvement methodology can be found in Appendix I: Stakeholder Involvement Methodology.

What We Heard

The information provided in the following section related to *What We Heard* was compiled and analyzed by CCI Research Inc., an external research consulting company. The company conducted the survey and interviews on behalf of Alberta Education and reviewed all the notes and citations recorded by expert working group members during focus groups and site visits. The information was provided to Education as aggregated reports and was based on the company's analysis of information gathered through the stakeholder involvement activities. The analysis entailed a thorough review of all comments and it clustered them into common themes. The reports were intended to represent information as it was submitted by participants, without interpreting or making assumptions on its meaning or implications.

Please note: The content of the *What We Heard* section reflects the consulting company's perspectives on topics and themes reviewed and does not necessarily reflect the position of Alberta Education.

Recorded *"quotes"* are used frequently in this report to illustrate and provide a more vivid expression of commonly held stakeholder opinions. It should be noted, that the actual words used are the expression of one person's view.

Current State of Distributed Learning in Alberta

Overall, it appears that despite its uneven, organic growth, distributed learning has taken root in Alberta, with the supply somewhat lagging behind the demand from students. Stakeholders generally believe that distributed learning is being operated on the legacy and guidelines of a traditional, synchronous learning system. Many educators consulted during the stakeholder involvement process indicated that the old model should have been retooled with the emergence of digital learning.

Learning Anytime, Anyplace or Any Pace

Flexibility appeared to be a core need for students in this study. This included students from virtual schools as well as regular schools who were involved in distributed learning. The theme *"anytime, anyplace, at my own pace"* emerged as being well-suited to contemporary student lifestyles, as did the idea of flexibility in accessing learning that is personally relevant. The concept of flexibility offered by distributed learning is well expressed by a Curriculum Coordinators' Focus Group: *"Less focus on bells and timetables, more focus on extended investigation and long-term projects."*

Learning Anytime

Time is perceived to be a critical currency for high school students. Educators stated that students are working at a younger age and need learning flexibility to accommodate their jobs. One school reported that half of its students work full or part-time and that distributed learning opportunities permits them to learn on their own time, allowing them to work during the day.

It is evident that students operate on different time cycles/time needs and welcome the flexibility that distributed learning offers. It appeared that many students who were interviewed believe that their learning capacity diminishes in the early morning and that studying after 10 a.m. is more productive.

The following table was taken from a recent public satisfaction survey and illustrates the increasing student workloads outside of school and, therefore, affirms students' need for flexibility in the school day.

Employment Status	2004	2005	2006	2007	2008
Employed High School Student	42%	48%	49%	57%	56%
10 hrs or less/week	34%	32%	28%	27%	31%
11-20 hrs/week	41%	47%	48%	57%	48%
More than 20 hrs/week	24%	21%	23%	16%	20%

Source: Alberta Education High School Student Survey, June 2008

Learning Anyplace

Many of the students who were interviewed and who had previously been enrolled in distributed learning courses reported little nostalgia for the traditional classroom, which is generally seen as unappealing and uncomfortable. These students stated that they enjoy the comfort, convenience and security of studying at home, at work or at another familiar location. Some students reported that asking a teacher a question online or by telephone is easier than asking the question in a traditional, synchronous learning environment. These students felt they received a more personalized response and that it was less embarrassing to interact with the teacher in a virtual setting.

Students also mentioned the following as benefits to learning outside of the traditional classroom:

- avoidance of peer pressure and bullying
- avoidance of social and academic competition with other students
- learning time not *"wasted by teachers talking and students responding."* (School site visit, May 2008).

There also seems to be a perception from educators and parents that there has been an increase in home education and blended learning in Alberta. Many participants also noted the benefit of flexible work schedules and an increasing trend in parents choosing to work and/or educate their children from home. This has been seen as an effort to be the main role model for their children.

Learning at My Own Pace

Many educators interviewed pointed out that the current student generation is *"wired differently"* due to living with:

- conflicting time requirements across several realms; e.g., home, school, social, work, sports, arts
- constantly multitasking
- the pressure to keep up and be relevant to a continuously changing world.

Educators pointed out that today's students have been raised in a world that is *"never still"* and that the traditional *"sit-n-get"* is excruciating for some students, no matter which medium they are learning with. They similarly noted a decrease in attention spans among students and suggested that school work needs to be more engaging, instantly gratifying and provide today's students with a greater sense of accomplishment.

Most students who were interviewed reported that they greatly appreciate being given the choice, opportunity and freedom to work at their own pace. One student participant mentioned that "*Some students may achieve the learning outcomes of a 25-hour instructional concept in as little as four hours or may take many hours more.*" Several other practical benefits noted by students were:

- better time management
- freedom to spend more time in pursuit of specific learning interests
- not being held back from learning opportunities by the pace of the classroom.

Students Embracing Technology in Learning and Life

Student Proficiency with Technology

The reference to today's students as *"digital natives"* frequently is used by teachers, principals, curriculum coordinators and school authority administrators. They noted that students have grown up using technology and, as such, *"technology is as natural to young people as navigating a newspaper is to their parents."* They frequently described students as hardwired for technology and its immediate response. Some educators correlate this phenomenon with youth needs for instant gratification and multiple choices.

Many participants felt that students are driving the technology and are technologically savvier than most teachers, as illustrated by the following recorded comment from a CASS Symposium focus group as well as a focus group with principals: *"Students ahead of teachers … teachers ahead of boards … boards ahead of Alberta Education."*

Students reported on the benefits of managing their education online. They appreciated being able to hand in assignments and receive and check their marks online. The sourcing of online information on current or upcoming activities, as well as updated and archived news about their school, teachers and fellow students seems to be a natural way for them to be informed. Overall, most students also reported being involved with the creation and use of technology from blogs, websites, photo editing, music editing and other multimedia manipulation, and stated that they understand which online activities are meant for learning and which ones are for entertainment. The literature reviewed mentions that students are good at predicting future uses of technology and guiding current practices to meet their own needs.

Parents who were interviewed reported being aware of their children's thirst for technology and increasing embrace of a digital world of socializing and education. These parents generally believe that a major consequence of the digital trend is the need to equip their children with the strength and independence necessary for student-centred, self-directed learning. Parents suggested that today's students are expected to act with greater autonomy and increased responsibility for decisions regarding their educational goals and performance. Parents also noted that they need to help their children become autonomous, motivated learners and that they need to provide a home environment conducive to inquiry-based learning, as well as the necessary Internet access.

Student Instant Access to Knowledge

Participants of the Discover Phase noted that as the use of technology expands, students seem to be increasingly driving learning process in such a way that the power, knowledge and roles of the teacher and the learner are shifting. There is a general belief that administrators and planners need to rethink the *"top-down traditional teaching model"* and operate more within a student-centred learning model,

allowing students to play a more dominant role in the design of education from course content to the technology accessed and used. As a result of this thinking, collaboration is reaching new heights as students and teachers use more powerful tools such as wikis, open-source course and content management, Web conferencing and videoconferencing, and class-capture applications.

Industry members stated that they *"want and need people who can think,"* which is driving a need for teaching methodologies to focus on creative and innovative thinking. There also appears to be an increasing emphasis on skill acquisition rather than knowledge. This trend comment, which occurs in several stakeholder segments, is driven by the notion that today's student has instant access to knowledge and sees no need to internalize or memorize. Students do, however, consistently express the importance of acquiring the necessary skills to:

- access technology
- acquire and hold a job
- navigate the complexity of today's fast-paced world.

Although students generally stated that they understand which digital activities are meant for learning and which ones are for entertainment, educators often referred to a lack of critical thinking among today's students. There is a belief that, as a result of the increasing misinformation available through the Internet, students must be given more learning opportunities to think critically to enhance their digital-information decisions.

Perceived Gap between Teacher Capacity and Student Needs

Teacher Capacity in Distributed Learning

Regardless of the learning environment, participants agree that quality teaching remains the strongest determination of student success. A recurring theme of this study has been the perceived gap between teacher capacity in distributed learning and student learning needs and interests. Similarly, teachers, parents and curriculum coordinators point out that the *"Digital native is being educated by the digital immigrant."* A few principals suggested that teachers with the required skill set for effective distributed learning are in short supply due to demands including:

- developing technological skills that match their students' skills
- acquiring student-centred, inquiry-based teaching skills
- adopting the new role of learning facilitator
- managing the teacher/student relationship in the new technological environment.

Many teachers and principals acknowledge the gap and indicate that time and/or resources are limited for some of the key distributed learning necessities, including the following.

Course Preparation—Inquiry-based learning requires substantial teacher preparation time and the addition of technology increases preparation time requirements.

Course Content — Some teachers feel they are spending too much time developing course content that should be available from standardized sources.

***"Tech Prep"* Time**—Some teachers indicate that they need more time to *"play with the technology"* to improve their technology skills and become more proficient.

Effectively Responding to Student Needs and Requests—The *"anytime"* aspect of distributed learning means that students are seeking teacher response *"24/7"* by e-mail, telephone or website. While some teachers appear to place guidelines on their availability, others seem prepared to respond to student questions far beyond normal classroom hours. Some report frustration of not having *"24/7"* access to their digital administrative files.

There is little doubt among participating stakeholders that distributed learning capacity building needs to be selectively enhanced. Although most respondents to the online survey (73%) have accessed at least one professional learning opportunity to build their knowledge and capacity in distributed learning, additional analysis revealed that only half of the respondents are satisfied (7% very satisfied and 43% satisfied) with the availability of professional learning opportunities to build knowledge and capacity in distributed learning. Twenty-three percent are dissatisfied, 7% are very dissatisfied and 21% reported that they don't know. Further detailed information on survey findings regarding teacher professional development for distributed learning can be found in *Appendix II: Teacher Professional Development for Distributed Learning.*

Participants also noted that most new teachers entering the profession are considered to be 'digital natives' from the *"Gen Y and Millennial"* generations. These new teachers soon will outnumber the retiring baby boomers. Some participants commented that, as this shift occurs naturally, these new teachers are likely to bring a greater confidence in the use of technology, a capacity to infuse technology into teaching and learning practices, and a history of learning in nontraditional modes.

Varying Levels of Teacher Technology Use

Overall, 71% of teachers who responded to the online survey reported using technology in their teaching practice. Seventeen percent reported that they are excellent, 52% reported that they are good and 27% reported that they are fair in the use of technologies in their teaching practice. Although almost all respondents felt that technology is very important (56%) or important (37%) in teaching and learning that allows learning to occur independent of time and/or place, approximately two-thirds (66%) reported spending less than 60% of their teaching time each week using technologies that allow that type of learning to occur.

Respondents to the online survey were asked about the type of hardware and software they use, as well as how important they feel various types of hardware and software is to their teaching practice. The following table illustrates the degree of importance of various types of technology hardware and software, as identified by teachers and administrators.

For each of the following, please indicate how important the technology hardware/ software is to your teaching practice.

Hardware	Very Important + Important	Software	Very Important + Important
Internet (wireless or cable)	95%	Productivity (word processing, spreadsheets, database)	91%
Desktop computer(s)	91%	Communication tools (e-mail, discussion forums, instant messaging, chat)	80%
Production (digital printer/copier)	83%	Multimedia (users prepare project using sound, pictures, graphics, video, text and/or hypertext)	77%
Presentation (interactive whiteboard, LCD projector)	82%	Assessment (online quizzing, self-check tools)	66%

Table 1 continued ...

Communication (fax machine, telephone, audio conferencing)	71%	Demonstration/presentation (assists users to prepare computer presentations)	64%
Laptop computer(s)	65%	Drill-and-practice (practice concepts, keep track of individual progress)	58%
Recorder (digital camera, digital video camera)	64%	Problem solving (require strategy and input)	57%
Assistive technology (any product, device, or equipment used to maintain, increase, or improve the functional capabilities of individuals with special needs)	62%	Online tutorials (present a new concept)	55%
Personal digital devices (MP3, PDA, cellphone)	27%	Assistive technology (software that allows accessibility to users who otherwise would not have access, typically due to a special need)	49%
Videoconferencing	26%	Games (generally a drill-and-practice format with a winner or top score option)	45%
Tablet computer(s)	14%	Simulation tools	44%
Teleconferencing	14%	Learning management system	42%
Gaming hardware	11%	Groupware	32%
Other	15%	Collaboration tools (wikis, application sharing)	28%
		Social networking software/sites	22%
		Authoring (users develop computer programs in computer languages)	20%
		Other	12%

It is important to note the high level of use and importance attributed to the Internet, productivity software, computers, presentation software and communication tools. It is interesting to note the growing importance of assistive technologies. While focus group participants noted an increase in videoconferencing, the level of use is minimal in comparison to other communication technologies. While less than half of the respondents rate learning management systems as very important or important to their teaching practice, additional analysis revealed that respondents who are currently involved in distributed learning are more likely to report that learning management systems are very important. These respondents also are more likely to report using online tutorials and demonstration/ presentation software in their teaching practice.

Communication and collaboration tools such as wikis and social networking software/sites are not being used as extensively as other software; however, focus group and site visit participants explain that the use of such applications is often not permitted in schools due to issues of privacy and network security.

Further detailed information on survey findings regarding teacher technology use can be found in Appendix III: Teacher Technology Use.

Importance of Relationships

A number of teachers and administrators suggested that some current models of distributed learning can be an impediment to the teacher/student relationship, which is a critical part of the learning process. Many students reported that they enjoy collaborating with fellow students on projects and that this process is less evident in many distributed learning models in Alberta today.

"Students still need community, a sense of belonging."

(CASS/Alberta Education Symposium Focus Group)

Despite students reporting that they are comfortable with digital learning, potential isolation and a lack of collaborative engagement is a deficit that students observe in some online learning and videoconference–learning experiences. Some students who have taken online courses feel they receive a more personalized response to their queries than students who learn primarily through a videoconference setting. Many students who have been involved in videoconferencing shared the embarrassment of asking questions in front of many students from various locations, as well as the frustration of not being able to discuss issues one-on-one with the teacher or with other students in other locations. Some students mentioned that they see online learning as isolating and noncollaborative. This is countered by the comments related to the movement to online learning to avoid peer pressure, bullying, social and academic competition, and a *"stand-and-deliver"* instructional setting.

Teachers agreed that there is an overall need to improve student engagement and collaboration within online–learning settings. Teachers stated the importance of finding innovative ways to engage learners through distributed learning and continuing to build on student-teacher and student-student relationships in all learning environments.

"Students require social networking as part of the learning process."

(Curriculum Coordinators Focus Group)

According to the literature reviewed and discussions with virtual school representatives, students are showing more success in online courses that provide high teacher-student, student-student and course material interaction. These findings are coupled with an increasing belief among the students who were interviewed during site visits that social interaction increases with peers when using online social networking technologies. It is important to note that hybrid models of face-to-face instruction and online reflection, as well as student engagement have reached almost a 10% increase in achievement for students (http://www.eschoolnews.com/news/top-news/index.cfm?i=53395). Although the adoption of social networking technologies for ECS–12 education in Alberta is relatively slow, there appears to be an overall increase of personal Web conferencing and other online collaboration tools which appear to "*meet student needs for a community and sense of belonging.*" Educators participating in the stakeholder involvement process noted "*the demise of the social aspect of school as it has been*" (CASS Symposium, April 23, 2008), and the importance of *"requiring social networking as part of the learning process."* (Principals focus group, May 23, 2008.) Some educators mentioned that social interaction skills are on the decline, that today's students are not good at decoding body language, and that there is an increase in the number of young people wanting to withdraw from society.

Students expressed that they are often connected and are pushing for access and use of communication technologies within their learning environments. Some educators, who were interviewed, spoke of the skills students have with social networking technology and suggested that *"students use it [social networking technology] all the time and see education behind,"* and that *"they self-regulate their use of technology when properly informed and trained."*

Decentralized Resource Access, Use and Development

Resource Access

When survey respondents were asked to identify which learning and teaching resources they have access to, regardless of whether or not they were currently using them, most stated that they have access to textbooks (94%), LearnAlberta.ca (93%), CDs/DVDs (86%), and support resources such as guide to implementation (83%) and Tools4Teachers.ca (78%), and that they are less likely to have access to wikis (20%) or online social networking sites (15%). About three out of four of all respondents have accessed learning and teaching resources from Alberta Education (75%) or from third-party vendors (74%), while over half (58%) have accessed learning and teaching resources developed in their school or school district.

When asked about barriers to accessing learning and teaching resources, respondents typically reported that there are no barriers to most of the online resources; however some reported barriers as a result of Internet access. When identifying barriers for some of the print materials, 70% mention cost of textbooks and 53% mention cost as a barrier to other print materials.

A consistent perception from the focus groups, site visits and interviews is that there has been an increase in free access to resources created digitally. Participants see an increase in the number of private and public institutions developing and housing learning object repositories with their own infrastructure, some of which require a membership and others which promote open access. Some interviewees noted that smaller private organizations and third-party developers are increasingly developing digital learning resources that are timely, contextual and allow the flexibility needed to provide personalized learning experiences for students. Many educators mentioned that such proliferation of online resources is creating search and retrieval problems for them because the information and resources are in decentralized locations. There also seems to be a strong belief that a move from textbooks to online publishers' websites is making access to learning resources more difficult due to cost and negotiation requirements. They stated that copyright licenses are too costly and too time demanding to negotiate. It appears that copyright issues are limiting the ability of individuals to access learning and teaching resources from year-to-year and between educators. The belief is that the *"proposed Bill C-61 amendments to the Canadian copyright law can both help and hinder distributed learning resource development and collaboration efforts at the same time."* As a result, intellectual property and rights to openly share digital information will continue to be a challenge for policymakers.

Further detailed information on survey findings regarding resource access can be found in Appendix IV: Resource Access, Use and Development.

Resource Use

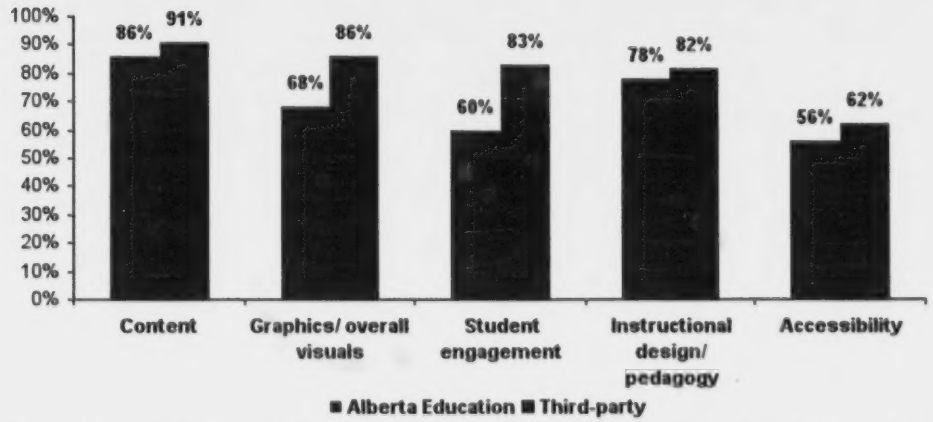
The large majority of survey respondents believed that technology is important for learning today, that print materials are used more frequently (daily or weekly) than Internet resources (used monthly or less). Respondents stated that print resources are the most common type of resource they have access to. When asked how often they use a series of specific learning and teaching resources in their practice, online survey respondents reported the following.

- The most common daily resources include textbooks (49%) and other print materials (45%).
- The most common weekly resources include other online resources (39%), other print materials (33%), CDs/DVDs (31%), and support resources; i.e., guide to implementation (30%).
- Using LearnAlberta.ca monthly (31%) or a few times a year (30%), similar to Tools4Teachers.ca (26% monthly, 28% a few times per year).
- Resources that are commonly used only a few times a year include LearnAlberta.ca (30%). Tools4Teachers.ca (28%), a support resource, i.e., guide to implementation (26%), and online video/podcasts (26%).
- Never using wikis (67%), online social networking sites (64%), or correspondence course packages (63%).

Sixty percent of respondents use ministry-approved resources more than 60% of their teaching time, and a large majority of respondents rated the quality of authorized resources developed by Alberta Education as very high. Respondents generally rated the quality of third-party vendor resources slightly higher, particularly in the areas of graphics/overall visuals and student engagement. (See Chart 1.)

Chart 1

Percentage of Excellent + Good for Learning and Teaching Resources



Approximately one in five respondents (23%) estimate that at least 60% of students in their school use distributed learning resources in an average week, approximately half (48%) estimate that less than 60% of students in their school do the same. Twenty-eight percent do not know how many students in their school use distributed learning resources in an average week. It is important to note that the comments made during the stakeholder involvement process made it evident that many regular schools are increasingly using distance learning modules and distributed learning resources to facilitate learning in the classroom.

Further detailed information on survey findings regarding resource use can be found in Appendix IV: Resource Access, Use and Development.

Resource Development

One in four respondents to the online survey have been a developer of learning and teaching resources—primarily course manuals (45%) and websites (29%). Other resources that were developed include distance learning courses, modules, and/or lessons (digital 25%, and print 20%), multimedia; i.e., Flash objects 24% and videos 20%). Approximately one in four respondents (24%) mentioned developing some 'other' type of resources, which varied between examples like study guides, lesson plans and assessment tools.

Those who are currently involved in distributed learning are more likely to have developed:

- digital distance learning courses, modules and/or lessons
- print distance learning courses, modules and/or lessons
- videos,
- online multimedia,
- websites.

Additional analysis on the survey showed that the longer a respondent has been involved in distributed learning, the more likely s/he developed learning and teaching resources.

As shown in Table 2, older students are more likely to be the intended group for developing resources.

Table 2
For what level/group were the resources developed? (n=465)

Category	Number of Responses	Percentage of Responses
ECS to Grade 3	92	20%
Grades 4 to 6	138	30%
Grades 7 to 9	189	41%
Grades 10 to 12	239	51%
Special Education	33	7%
Community	23	5%
Other	34	7%

Respondents who are currently involved in distributed learning are more likely to report that the resources they develop are for students in grades 10 to 12.

According to the survey data, funding for resource development comes from a variety of sources, school budgets (33%) being the most common, (See Table 3.) Other common sources of funding were program budgets (23%), the district (21%), an AISI project (21%) or some other Alberta Education project (17%). One in four respondents (25%) mentioned some 'other' type of funding source and of these sources, respondents most often mentioned that funding often came out of their own pockets; e.g., personal finances, working extra hours, working during the summer months.

Table 3

Who paid for the resource development? (n=460)

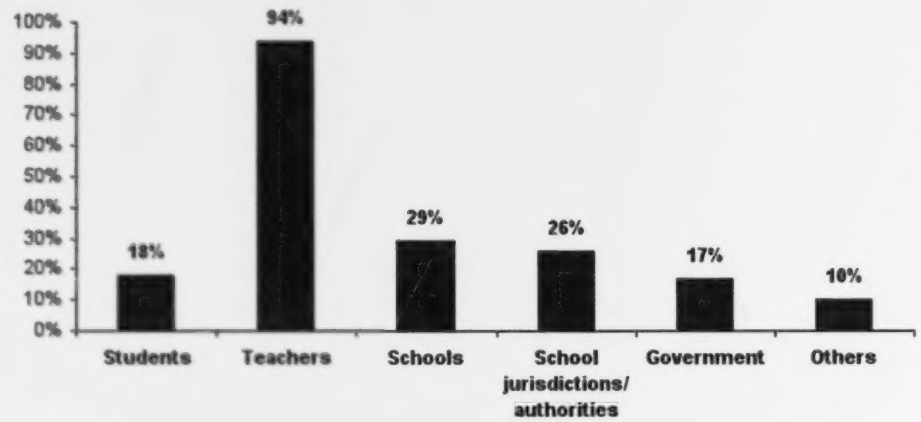
Response Category	Number of Responses	Percentage of Responses
School Budget	152	33%
My program budget	108	23%
District	96	21%
AISI Project	95	21%
Other Alberta Education project	78	17%
Other	115	25%
Don't know	23	5%

Survey respondents currently involved in distributed learning were more likely to report that the school budget paid for resource development.

Of the 68% of respondents who reported that the resource development was a collaborative effort, 94% indicated that the collaboration was among teachers, 29% indicated that it was among schools, and 26% indicated that it was among school jurisdictions/authorities. (See Chart 2.) Of those who reported the collaborative effort was among school jurisdiction/authorities, one in three (33%) also collaborated with the government.

Chart 2

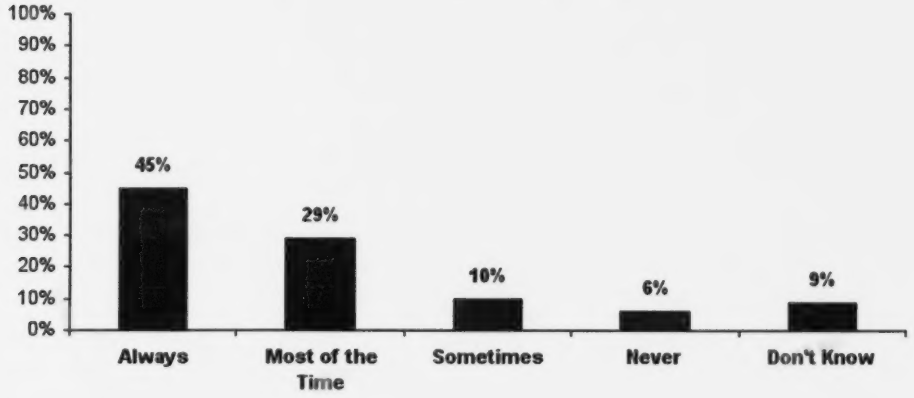
Please indicate who the resource development was a collaborative effort among. (n=316)



About half of all respondents (47%) reported that there should be minimum provincial standards, specifically for the development of distributed learning resources, while 20% said no provincial standards were necessary and 33% do not know. Chart 3 shows that the majority of respondents always (45%) or most of the time (29%) had to adhere to standards, requirements or guidelines.

Chart 3

In your experience developing resources, how often were you required to adhere to development standards, requirements, or guidelines? (n=464)



Respondents most commonly reported having to follow provincial standards with regard to content (87%), instructional design/pedagogy (60%), accessibility (50%), and copyright (62%), and school standards with regard to style guide and graphics (47%), accessibility (47%), technical specifications (46%) and instructional design/pedagogy (45%).

Further detailed information on survey findings regarding resource development can be found in Appendix IV: Resource Access, Use and Development.

Perceived Gap between Technology Access and Student Needs

According to stakeholders, existing technology appears to be adequate for current distributed learning practices. Participants generally agreed that the technology is in place, but it needs to be equitably distributed within a standardized architecture that connects jurisdictions and eases student transitions. It is a common belief among participants, that families in lower socioeconomic conditions continue to have limited or no access to computers or the Internet. Educators acknowledged a disparity in performance between students who have access to the Internet and those who do not have access.

Stakeholders say that the creation of new technology should not be the priority, but that the deployment of the existing technology needs to be more focused, with a commitment to equitable accessibility and availability. Participants generally noted that the vision of equitable access and technology availability can only be successfully achieved through a commitment to increased funding.

Limited Standardization

The current status of technology in the education system is perceived as a *"checkerboard"*, where different technologies are in use in different jurisdictions, and different systems are in use in post-secondary and industry. The site visit notes in this study confirm that decentralized site-based decision making is used for technology acquisition based on perceived need and budget availability.

It also appears that wireless connectivity capability varies considerably from school-to-school and between jurisdictions. Some school jurisdictions are seen as *"technological laggards"* because they have not purchased or installed the needed, appropriate technology infrastructure or hardware or they are not replacing existing technology as it becomes outdated and obsolete.

Inequitable Access

According to participants in the stakeholder involvement process, too many students do not have proper access to distributed learning by virtue of insufficient Web connections resulting from limited bandwidth, lack of school wireless connectivity or in-home restrictions. Participants noted that some students do not have the connectivity and/or hardware that allows them to access their learning at any location.

Equitable connectivity at school and home was a major theme for many students living in rural areas. These students find home access difficult because of limited connectivity or lack of hardware. Other connectivity challenges noted were inequitable broadband access in rural jurisdictions and varying levels of wireless access at schools.

There appears to be a growing acceptance and use of videoconferencing in schools. Various learning management systems (LMS) also continue to be developed and/or acquired to offer educators and students the 'anytime, anyplace, any pace' access to learning content and administration.

Operating Stability

Stakeholders said that if technology is not stable and dependable, it destroys the excitement and fulfillment of inquiry-based learning for students, and becomes a frustrating pedagogic and administrative nightmare for teachers. Students and teachers agree that websites, which are not kept up-to-date are another source of frustration. Students reported being frustrated especially with programs that are too slow or do not work the way they should.

Cautions on *"Techno-Worship"*

A minority of educators warned that the distributed learning community can become obsessed with technology and forget that it is just one piece in the education system. For example, the following comments were made during focus group discussions.

- *"Technology is the medium, not the message."*
  (Alberta Education Interbranch, May 20, 2008)
- *"Technology is not the centre … the teacher is the facilitator of learning."*
  (Teacher focus group, May 30, 2008)
- *"Policy must move technology, content and pedagogy forward together."*
  (CASS focus group, May 16, 2008)

Learner-Centred Technology Architecture and Management

In addition to reporting on distributed learning technology currently in use, students, educators and administrators noted that school technology needs human management and intervention. They indicated that technology architecture designed by governance and leadership policy developers does not always meet key stakeholder needs. These include:

- inquiry-based, self-directed learning needs for students
- pedagogical, administrative and collaborative needs for teachers
- funding models and management needs for principals
- participatory needs for families.

Participants noted that there appears to be an increasing divide between the technologies used in students' personal lives versus what is permitted or available in schools. Students questioned why they often are not permitted to use the technology that is the mainstay of their personal and social lives when they are at school; i.e., *"iPods"*, cellphones, other mobile technologies. Teachers and principals stated that cellphones, in some cases are replacing laptops, are becoming a ubiquitous tool for students, and for the those in the workplace. They also noted that multimedia-rich resources are increasingly available for mobile devices, are being developed by the private sector, but are not typically incorporated into the learning environment. Curriculum coordinators indicated that the *"hard-to-access classroom"* is being seen as distant and artificial compared to the realities of students' lifestyles. This is coupled with perceived disparity in the academic performance of students who have access to the Internet and those who do not have access.

Governance and Leadership: Competition versus Collaboration

The views in this report indicate that the current educational policy in Alberta, starting with the *School Act*, has not been designed with the digital learning revolution in mind. Major governance and leadership themes revolve around regulation and policy issues that affect stakeholder operating procedures and ultimately impact on the resources that impact student distributed learning experiences. These include allocation of funding, competition versus collaboration and local autonomy versus provincial policy.

Inequitable Funding Policies

Participants in this study viewed current student funding practices as *"irrelevant to the basic principles of distributed learning"* (School site visit, June 2008); i.e., learning and teaching that is independent of time, place and/or pace. The rationale provided is that inquiry-based learning occurs at the pace best suited to the student and that time varies depending on the student's learning needs. This open-ended notion of time is inconsistent with the current Credit Enrolment Unit (CEU) funding, which is widely viewed to be based on hours completed and on attendance. Providing equity in learning opportunities for rural students appears to be more challenging, typically due to a perceived disparity of funding between low-enrollment rural and high-enrollment urban jurisdictions, as well as cross school/jurisdiction competition for CEU funds.

Competition versus Collaboration

Stakeholders generally noted that the current funding model promotes interjurisdictional competition for resources, which results in inefficiencies rather than the potential cost-benefits of collaboration. Teachers, principals and administrators generally perceive an isolationist attitude among school boards and the resulting inefficiencies. One principal summarized a general view of the current status: *"Uncooperative attitude between boards ... everyone is on an island doing their own thing"* (Principals focus group, May 23, 2008).

Teachers frequently mentioned that the costly digital course materials developed in individual schools are not shared, and therefore the development is replicated at other schools. It is widely believed that students, teachers and school operating budgets would benefit from shared knowledge and experience, especially content development and technology and standardization between jurisdictions. Educators indicated that the current competitive system is so ingrained that an attitudinal shift is required, noting that *"We need to build a culture of collaboration"* (ATA focus group, June 10, 2008).

Local Autonomy versus Provincial Policy

School board representatives who participated in the stakeholder involvement process generally noted that they agree with the benefits of collaboration, but see the importance in jurisdictional autonomy and responsibility to deliver programs that best meet the needs of students in their respective jurisdiction.

A few school principals and teachers vigorously supported the benefits of local decision-making in course content and technology, suggesting they are closest to the needs of their students. This was illustrated by the following comment made during a CASS Zone meeting focus group: *"Honour the autonomy of successful divisions."* Many other participants used words like *"patchwork"* and *"checkerboard"* to describe operating policies across Alberta schools.

Needs Analysis:
How to Support Effective Distributed Learning in Alberta

The information provided in the following section summarizes the distributed learning needs shared by stakeholders through focus groups, interviews and site visits that were held in May and June 2008. When considering how to support effective distributed learning in Alberta, stakeholders identified that the following needs to be addressed.

- Provincial guidelines, policy and regulations promote flexibility and collaboration, and allow learning to occur anytime, anyplace and at any pace. This includes student needs for choice and relevance as well as the need for flexible timetabling and infrastructure.
- Common pedagogical and technological standards, both of which are required for effective multilateral communication and development of collaborative initiatives.
- Coordinated and comprehensive capacity building opportunities for teachers and administrators to bridge the perceived gap between teacher capacity and student needs and to build strong relationships between students, teachers, parents and school authorities.
- Centralized and coordinated content access, use and development to meet the diverse needs of students in a variety of learning environments. This includes the need for accessible, flexible, adaptable and customizable learning and teaching resources.
- Equitable and ubiquitous student and teacher access to technology and reliable technology support.

Provincial guidelines, policy, and regulations that promote flexibility and collaboration, and allow learning to take place anytime, anyplace, and at any pace. This includes student needs for choice and relevance as well as the need for flexible timetabling and infrastructure.

Policy and Planning that Support Student-centred Learning

Putting the student at the centre of decision-making and planning is seen as the key element required in making the significant changes that are needed. The majority of participants, including professionals who were interviewed from across Canada, advocate for a change in the planning process, where carefully crafted strategies and plans are based on the assessed needs of students. A number of individuals interviewed stated that the *"top-down"* approach of imposing educational programs on students is *"outdated."* They believe today's students need to *"learn how to learn,"* to build their *"independent learning and process skills,"* and to be given the opportunities to personalize their education. Stakeholders consistently advocated for policymakers to *"keep their finger on the pulse of the student,"* and *"allow students to create their own learning pathways given guidance by their teachers."*

"Laptops on every lap in every school."

(Curriculum Coordinator Focus Group)

Parent interviewees embraced the opportunity that distributed learning provides for the student to play a larger role in the management, pace and content of his or her education and learning process. They largely supported an elevated student role, recognizing that their children need to be more independent and self-motivated in order to foster lifelong learning and be successful. Parents, educators, administrators and post-secondary interviewees suggested the need for a broad commitment to distributed learning, including sound planning, policy guidelines and a supportive administration.

Parents noted the importance of a political commitment to distributed learning with a need for change in government policy that would position distributed learning as a key priority within the next five years.

Stakeholders see the importance of providing responsive accountability of various distributed learning delivery models. The focus of the accountability is on ensuring that students have equitable access to high-quality learning opportunities and choices, based on their personalized needs and preferred learning environment. They also mentioned the importance of distributed assessment to allow students to complete their assessments on-demand and in real-time. This would mean that provincial achievement tests and diploma exams would have to be available digitally, allow for thorough randomization of questions and/or activities and be available when and where students are ready to complete them.

Communication and Collaboration to Accommodate the Blurring of Boundaries

Participants stated that there has been a blurring of educational boundaries. Perceptions indicate that there are more Alberta students who are accessing courses outside of their local jurisdictions both in and outside of Alberta. This is seen as more prevalent as global information and distributed learning become widely available and as educators examine initiatives and opportunities developed in adjacent and/or global jurisdictions. Participants noted the increasing opportunities for educators to collaborate with business. These partnerships support student-centred distributed learning through mentorship and apprenticeship programs that bring new learning opportunities to the student. Students are increasingly involved in university and college education programs while still in the ECS–12 system. The blurring of boundaries raises questions and challenges for education leaders and decision makers in terms of funding, accreditation and transitions between schools, school authorities and education systems.

Flexible and Equitable Funding

Participating stakeholders consistently indicated an urgent need for changes in funding policies. They specifically identified the need to re-examine how funding is allocated within schools and jurisdictions/authorities, as well as between collaborating jurisdictions/authorities. Stakeholders generally agreed that distributed learning funding policies must reflect the new student-centred model, rather than older models that are perceived to be driven by hours of instruction and classroom size. The advocates for change suggested that distributed learning funding models be results-oriented and driven by outcomes rather than be based on the Carnegie Unit model, which prescribes hours of instruction for course credits. Participants recognize that a results-oriented funding model inevitably would introduce major changes in the education system, including a review of monitoring and accountability practices, which would potentially result in resistance from school jurisdictions. They also suggested that funding for resource development could stimulate sharing and collaboration, and reduce competition and redundancy. They stressed that any new outcomes-driven funding policies be fair, and not increase the perceived disparities between high-enrollment urban jurisdictions and low-enrollment rural jurisdictions.

Harnessing Benefits of Jurisdictional Autonomy

As mentioned previously, findings pointed to student-centric flexibility as the cornerstone of distributed learning and that an excess of rules imposed from the top-down is in conflict with that principle. School board administrators stressed the importance of jurisdictional autonomy in delivering the programs that best meet the needs of students in individual jurisdictions. Similarly, many teachers and principals interviewed were extremely proud of the way in which they have served the unique needs of individual and local communities. While there is an evident need for standardization, coordination and collaboration, school board officials stated that any provincial approach to distributed learning should enable jurisdictions to be autonomous and encourage local student and teacher innovation. This balance was expressed in a focus group of school principals: *"Distributed learning needs to be a centralized movement with ample opportunity for local input and collaborative opportunities."* (Principals focus group, May 20, 2008)

Common pedagogical and technological standards are required for effective multilateral communication and development of collaborative initiatives.

A general belief among participants of the stakeholder involvement process is the need to share information, collaborate and work from a common set of standards in order to improve perceived disconnects in and between the ECS–12 education system, post-secondary and industry. Participants suggested that standards and evaluation criteria need to be established in areas such as hardware and technology support, infrastructure access, digital content and teacher qualifications related to distributed learning pedagogy. A popular belief is that cost and operational efficiencies would flourish if more standardization was mandated in these key areas, especially as it relates to the potential for multijurisdictional purchasing leverage with technology and content acquisition.

Stakeholders consistently noted the importance of preparing students for lifelong learning, and commented on the need for collaboration and technology standardization between ECS–12, post-secondary and industry. Many stakeholders perceived disconnects between the ECS–12 and post-secondary systems and suggested the following opportunities for sharing initiatives that would serve the community as a whole.

- collaborative content development to reduce duplication of effort
- common planning meetings and commitment to joint activities
- double accreditation program where students can obtain their high school diploma while doing post-secondary courses
- partnership in grant submission processes
- collaborative pilot projects
- distributed learning centres of excellence and shared higher education research on distributed learning
- shared information on the types of skills that ECS–Grade 12 students are developing
- advanced educator distributed learning training that covers both the ECS–12 and post-secondary systems
- shared software, hardware and platform technologies
- creation of government policy direction that encompasses education ministries, with representatives from post-secondary and ECS–12 on the advisory board.

Industry stakeholders commented on having the capacity to play an important role in defining skill set needs and to recommend technology that will help students transition into entry-level industry positions. They suggested that distributed learning technology could be used to help industry spokespeople communicate with students in virtual learning environments.

Stakeholders also believed that collaboration between Alberta jurisdictions and other provinces could be useful in developing technology standards for distributed learning. With the student pursuit of learning becoming increasingly global and academic standards getting higher, some stakeholders suggested that Alberta Education, as a leader in the distributed learning field, work with national initiatives such as the Canadian Network for Innovation in Education (CNIE) to strengthen Canada-wide understanding and developments in the following areas:

- distributed learning policy development
- strategy development and execution
- coordinated planning
- technology and content design standards.

Coordinated and comprehensive capacity building opportunities for teachers and administrators to bridge the perceived gap between teacher capacity and student needs and, most importantly, to build strong relationships between students, teachers, parents and school authorities.

Support for the Changing Needs of Educators

Many stakeholders noted that student-centred distributed learning is a new concept for some teachers. A number of stakeholders believed that traditional pedagogical skills are not readily transferable from the classroom to distributed learning environments. The increased demand for inquiry-based learning and technology preparedness, and the need to access learning networks independent of time and/or location, is creating the belief that teacher workloads are increasing. There is an increasing view that *"time is a variable that expands or contracts depending on the student's learning style"*, which also is believed to be causing challenges for educators as they are increasingly expected to reconfigure the traditional school day. The increase and changes in the skills required to adopt the new role of learning facilitator, e.g., technology, inquiry-based learning, teacher-student and student-student relationships, is driving the need for comprehensive and coordinated capacity building opportunities for educators in distributed learning environments. These changes also are causing concern among some teachers and administrators who recognize the inherent challenges in accessing comprehensive, integrated, capacity building opportunities, that suit their every need, when they need it and where they need it.

A re-occurring theme in focus groups and site visits was the need for provincial access to communities of practice and professional learning communities. They see value in teachers and school administrators having the opportunity to connect with one another across jurisdictions, share lessons learned and exchange promising practices in distributed learning. Similarly, participants who provide capacity building opportunities for Alberta teachers and/or see themselves as professional development providers report on the increasing need to play a role of *"agent of change"* to accommodate the growing need for capacity building by:

- increasing teacher professional development by using distributed learning technologies such as videoconferencing, online courses, and online social networking initiatives
- providing professional development distributed learning opportunities for all teachers
- ensuring standardization and coordination for technology-based professional learning across all Alberta school jurisdictions.

Opportunities for Preservice Teachers

Post-secondary instructors and administrators reported that the post-secondary system has the obligation to prepare teachers for distributed learning. Some participants noted an emerging trend of Alberta post-secondary institutions including distributed learning in their programming. Preservice teachers found that, although they receive some preparation in university, their practicum placements often lagged behind in the adoption of technology and/or distributed learning practices. Reinforcement and upgrading of teacher knowledge, skill and comfort level with distributed learning is a growing area of focus. Participating stakeholders reported on the need for:

- common standards for the integration of distributed learning in teacher development
- distributed learning teacher evaluation programs and ensuring that evaluation criteria are in place
- sustaining teacher training as a lifelong process
- online distributed learning teacher preparation that also can be used as a form of professional learning for practicing teachers
- leadership from the Alberta Education ECS–12 Standing Education Committee to help Alberta preservice educational programs and school boards develop a set of guiding principles and frameworks.

Parent and Community Involvement

Educators indicated that the support and involvement of parents and communities is important for successful distributed learning to take place and for provincewide capacity in distributed learning to be enhanced. Parents agreed that they play a strong supporting role in providing a home environment that is conducive to distributed learning and reported that they appreciate having real-time online access to their children's grades, as well as to direct information about their courses, teachers and school activities.

Most parents interviewed spoke of the importance of advocating for their child, being involved with their child's school, and participating in choices for the school programming. They generally expressed a strong desire to be involved in the evolution and championing of distributed learning and strongly support strategies that involve consultation and communication with parents. It was clear that the parents interviewed were willing to provide analytical feedback and become advocates of the vision of distributed learning by being involved with the Alberta School Councils' Association and *"voting for politicians who support distributed learning."*

Centralized and coordinated content access, use and development to meet the diverse needs of students in a variety of learning environments. This includes the need for accessible, flexible, adaptable and customizable learning and teaching resources.

A common theme arising from focus groups and site visits is the need for learning and teaching resources that meet the diverse needs of students in a variety of learning environments. Participants noted an increase in the need for flexible, adaptable and customizable learning resources to engage students in high-quality and equitable learning experiences. This need is a result of the more holistic approach to providing resources that are *"accessible"* to all students.

Teachers and administrators also noted an increasing need for standardized resources versus creating their own original materials. These comments were based on:

- time and cost required to develop high-quality content
- duplication of efforts within and among school jurisdictions
- teacher proficiency with technology
- varying abilities to digitize learning materials.

Teachers often stated the need to access standardized resources at varying levels of granularity; i.e., course, lesson, module, learning *"nugget."* The desire to be able to modify and manipulate the resources in order to personalize the content with their students also was noted. The need to provide learning resources in smaller *"chunks"* appears to be consistent with much of the literature. Teachers expressed a desire to create their own resources by using other standardized resources as the basis for design and development. They suggested that, while standardization is important, content needs to be geared to asynchronous environments and be sufficiently flexible to support a variety of student needs with engaging, personalized content.

Participating stakeholders also noted the importance of collaborative resource development and provincewide sharing of resources. They said that *"resources should be developed using public funds and made available to public schools in Alberta free-of-charge."* (School site visit and Home Education focus group.) There is a growing need to determine who will develop, fund and manage the resources needed for distributed learning in Alberta.

Equitable and ubiquitous student and teacher access to technology and reliable technology support.

Addressing Geographic and Economic Access Challenges

It was noted from the literature reviewed that 90% of the schools in Canada versus 100% of Alberta schools are connected to the Internet.

The current differences in student and teacher connectivity have been observed by virtually all participant groups. Stakeholders generally noted that there are geographic and economic factors challenging student access to the required technologies for effective distributed learning.

Geographic Challenges: Parents generally perceived that rural schools get fewer resources than their urban counterparts. They also believed that Internet access is compromised in some rural areas.

"Wireless environment in every school in Alberta."

(Curriculum Coordinator Focus Group)

Economic Challenges: Parents noted that students from economically challenged homes do not have the same access and familiarity with technology as their more affluent counterparts. They felt that, in order for equitable access to be a reality, subsidies for home computers will be required. Stakeholders from all segments of the stakeholder involvement process recognized that putting the necessary technology into the hands of students from financially challenged homes poses logistical and funding problems. Some stated that these problems may, to some degree, be offset by the trends of decreasing technology prices and increasing technology adoption throughout society.

The distributed learning professionals from across Canada who were interviewed are aware of the large digital learning technology investment required to achieve the distributed learning vision. They also seemed aware of the potential negative consequences of poor technological planning; they spoke of inadequate technology resulting in inconsistency for student learning, student demotivation, lack of confidence, disengagement and increased dropout rates.

Standardized Equitable Connectivity

Stakeholders consistently noted the need for major changes in infrastructure and technology support to provide equitable access to distributed learning. They generally stated that budgeting for success would be a critical measure of stakeholder buy-in. Most stakeholder participants recognized that the vision would not be achieved in the short term; however, they sought assurances for the necessary long-term funding and commitment to be in place.

"A 'go-to' technology support person is essential for distributed learning to thrive."

(Curriculum Coordinator Focus Group)

In addition to the major expense of bandwidth, hardware and software, stakeholders generally believed that, in order for Alberta students to have equitable access to high-quality learning opportunities and choices that are independent of time and/or location, the following connectivity scenario would be ideal.

- Students and teacher would have high-speed Internet access from school and home.
- Schools in Alberta would have robust wireless connectivity.
- Students would have reasonable access to their teacher, as required.
- Every student, teacher and parent in Alberta would have reasonable access to reliable technical support.
- Hardware and software available to students and teachers would be:
  - interoperable
  - up-to-date and fully functional
  - ubiquitous throughout the Alberta education system
  - available to students, regardless of location
  - monitored, maintained, and updated, as required.

Participants also shared concerns over the perceived culture of competition versus collaboration and mentioned the inequities listed above as intensifying the disparity between small/rural and large/urban school jurisdictions. This is increasing the call for centralized technology management and deployment that ensures equitable access and availability.

Perceptions on Emerging Trends that will have the Most Impact on Distributed Learning in Alberta

Members of the expert working groups and steering committee for the Discover Phase of Alberta's Distributed Learning Strategy, including Alberta Education staff and education stakeholders, participated in a workshop on August 18–20, 2008 to analyze the information collected during the stakeholder involvement activities and to explore possible structures that might exist within a provincial approach to distributed learning.

The workshop participants' interpretation of the stakeholder involvement information gathered and literature research completed was that learning environments will be affected mostly by the following key emerging trends:

- collaborative knowledge creation
- universal/global standards
- responsive leadership
- celebrating and leveraging diversity
- mass customization
- borderless communication and community.

The following section lists perceptions consistently shared during the stakeholder involvement activities. These perceptions on emerging trends are organized according to the categories listed above. The order of presentation does not necessarily indicate the degree of importance, nor are the ideas presented definitive in determining all the perceptions of distributed learning in Alberta. The emerging trends are a reflection of the views of participating stakeholders and literature reviewed during the Discover Phase of the Strategy.

Collaborative Knowledge Creation

The literature summary clearly suggested that there is a movement from a *"need-to-know"* to a *"need-to-share"* educational world. (Principal focus group, May 23, 2008, and Teacher focus group, May 30.) In addition to a global drive towards the democratization of learning, the advent of Web 2.0 technologies is providing more options for students, educators, administrators, parents and industry to share, collaborate and develop local and global projects/resources. Technology-infused education has the potential to connect local and global communities, increase awareness of what students are experiencing, improve student transition experiences, and create efficiencies between ECS–12, post-secondary institutions and industry. This movement to a *"need-to-share"* educational world also enables students to create knowledge through virtual communities and borderless learning networks.

Universal/Global Standards

There are consistent perceptions that global academic standards are increasing and that the demand for credibility, accountability and return on investment leads to increased competition. Participating stakeholders mentioned that the learning outcomes of Alberta students are increasingly being compared to those of students in other countries and that *"global standards continue to rise, thus increasing competition."* At the same time, while we strive to quantify knowledge and wisdom, there are varying opinions regarding *"21st century credentials"* and educators continue to look for new ways

of assessing students in individualized and personalized instructional programs. A perceived surge in the use of open source and learning/content management systems also seems to be driving the need for standards in resource development, metadata and learning technologies.

Responsive Leadership

School authorities are more flexible by necessity as they become increasingly supportive of choice and opportunity beyond local boundaries, governance models and multistakeholder partnerships. School system leaders often are required to make decisions without certainty while increasingly being supportive of distributed leadership models and of safe-fail experiments.

Celebrating and Leveraging Diversity

Throughout the stakeholder involvement process and the literature summary, there is recognition that people are living in a different and continually changing world. The diversity of students entering the education system is increasing. For example, the number of First Nations, Métis and Inuit (FNMI) students is continuing to increase as are their technology skills. *"Multigenerational teaching is increasing ... a distributed learning class could find teenage students and sixty-year-old FNMI elders in the same course."* (First Nations focus group, May 27, 2008.) Participants mentioned that this change will inevitably affect the decisions related to on and off-reserve access to resources and infrastructure as technology continues to evolve. There also has been an increase in migration to Alberta over the past several years, stimulating an increasing need for resources to be provided in a variety of languages and accessible English as a Second Language formats. Participants of the stakeholder involvement process also noted the increase in the use of assistive technologies for students, more emphasis on universal access and a holistic approach to providing resources that are *"accessible"* to all students.

Mass Customization

Participants of the Discover Phase noted that, as technology use expands, students are seen as increasingly driving the learning process and are connected to many different knowledge communities and social networks. A consistent perception is the increased potential for students to become more self-reliant, make resource and technical choices that match their learning needs, and creating learning objects for themselves and others. In this way, the power, knowledge and role of the teacher and learner are shifting; the personalization of learning is increasingly valued and a shift toward competency-based education is taking shape.

Borderless Communication and Community

Information and communication technologies are increasingly being accessed by students and their families. This trend is expected to grow as technology prices continue to decline. There is a continuing decrease in the purchase of desktops and fixed electronic appliances. As wireless technology continues to advance and become ubiquitous there is an increase in the purchase of mobile devices; i.e., laptops, personal digital assistants. There is a perceived trend towards wireless Internet access in schools as more and more students are being asked to bring or are bringing their personal computers and/or communication devices to school. Participants also reported a growing support for *"connectivism"* as a new learning theory, which combines various learning theories with social structures and technology to address student needs at a time when people communicate, learn and live in a globally connected world. As of August 2006, 77% of Albertans were using the Internet and had access to global information and communities.

Recommendations from Alberta's ECS–12 Distributed Learning Forum

In order to develop combinations of possibilities for a provincial approach to distributed learning in Alberta and in consideration of these key trends, members of the expert working groups and steering committee of the Discover Phase established a framework for reflection that would help broaden their perspectives and ability to imagine our society's future learning environments. They engaged in a scenario-building exercise with an established facilitator representing ICA Associates Inc. (ICA) to explore some of society's major drivers of change and to explore possible futures. Following this exercise, the key success pillars listed below were identified and further validated at Alberta's ECS–12 Distributed Learning Forum as the elements that would ensure the success of a provincial approach to distributed learning.

Guided by the key success pillars and the information gathered from the stakeholder involvement process and literature review, the expert working groups and steering committee engaged in discussing future possibilities of distributed learning in Alberta. They explored various possibilities that could exist beyond any perceived limits of the current learning environment in the province. They explored three possible structures that would address distributed learning needs, no matter which future may exist in Alberta in the next 10 to 20 years. They explored the different structures and variables within a broad continuum of possibilities for each key success pillar, with the intent of further discussing them at Alberta's ECS–12 Distributed Learning Forum.

The groups explored one end of the continuum where a provincial approach to distributed learning could exist within a decentralized system that fosters primarily school authority leadership. At the other end of the continuum, they explored possibilities where distributed learning could exist within a centralized system that fosters provincial leadership and direction. These possibilities for distributed learning were further shared with stakeholders as a starting point for discussion and to facilitate activities of the online and live distributed learning forums from October 20 to November 4, 2008.

Stakeholders who participated in Alberta's ECS–12 Distributed Learning Forum on November 4 provided individual and group feedback to Alberta Education through the following two separate activities.

1. **Long-Term Recommendations**
   Each table of participants was asked to discuss the possibilities within one of the key success pillars and provide a long-term recommendation for consideration within a larger systemwide policy framework. These recommendations were further discussed in the afternoon as a basis for online polling, which allowed participants to further consider other participants' recommendations for each key success pillar and engage in conversation around potential short-term activities.
2. **Short-Term Activities**
   Participants engaged in a consensus-building workshop at their respective tables to identify short-term activities that, in their opinion, need to take place in the next phase of the Distributed Learning Strategy.

Although the polling of long-term recommendations was not conclusive in direction nor considered as a definitive recommendation, the themes and patterns represented in the recommendations and online polling are reflected in the summary below. The following is a compilation of the information collected on November 4 from more 358 education stakeholders. Participants of the Forum were connected through Web and videoconference technologies in six different sites across the province (Edmonton: 149; Peace River: 20; St. Paul: 18; Lethbridge: 37; Calgary: 104; Ponoka: 30). It is estimated that the composition of participants was as follows: 11% regular teachers; 13% online/distance/outreach/home education teachers; 1% parents; 14% curriculum coordinators; 17% school administration; 16% central office staff and trustees; 8% jurisdictional technology contacts; 12% Alberta Education staff; and 8% other (stakeholder groups, post-secondary and consultants).

For the purpose of this report, the information collected has been organized according to the key success pillars that were discussed at the Forum as well as a section on general feedback, which highlights a major theme and need for ongoing communication, collaboration and partnership.

Long-term recommendations focused consistently on the need for a centralized provincial leadership body to facilitate provincewide collaboration and coordination of content development, capacity building, technology services and continuous improvement efforts. Long-term recommendations also focused on an outcomes-based funding model and personalized local program design and accountability for 21st century learning outcomes.

Feedback on short-term activities that need to take place in the next phase of the Distributed Learning Strategy generally suggest that the will of stakeholders is to expedite a provincial approach to distributed learning in Alberta by initially *"defining distributed learning and 21st century outcomes"* and laying the groundwork for a model built on the key success pillars. The need to make thoughtful and informed decisions based on the potential implications and impacts of decisions made from one pillar to the next was evident.

Please note: the information in the following sections represents feedback provided by stakeholders at Alberta's ECS–12 Distributed Learning Forum. Writers of this report intended to represent the information as it was submitted by participants and without interpreting or making assumptions on its meaning or implications. Feedback and recommendations outlined in the following are meant to represent information gathered at the Forum and are being further discussed and considered by Alberta Education, while moving forward into the next phases of Alberta's Distributed Learning Strategy.

(Note: *"quotes"* in this report are comments submitted by stakeholders during Alberta's ECS–12 Distributed Learning Forum and are representative of similar statements made consistently throughout the feedback provided).

PILLAR A
Collaborative leadership

Pillar A: Collaborative Leadership

Centralize leadership, where appropriate, to encourage collaboration and/or sharing between school authorities regarding content development, capacity building and the centralization of relevant technology services.

Short-Term Activities

Of all comments related to the future of a provincial approach to distributed learning in Alberta, the feedback stressing the need to determine a leadership structure and corresponding funding framework was paramount. The need to ***"clearly identify the implications in relation to the School Act"*** was brought forward by several groups. The recommendation was made to align government policies, existing technology and facility initiatives, and other government initiatives, which have an impact and/or are impacted by distributed learning, to ensure that the remaining key success pillars are considered when making decisions around leadership.

The second and perhaps most common theme throughout the short-term activities submitted was the request that the ***"Ministry commit to a leadership model and funding direction"*** for distributed learning. Participants generally noted the importance of a *"systemized and standardized model that fosters collaboration within a unified structure,"* as well as the need for an operational and communication framework for the Strategy, including standards and an implementation schedule. A suggestion was the *"creation of jurisdiction distributed learning profiles"* that would form a basis for further discussion and decision making. Some participants recommended that the Ministry *"develop three to four funding scenarios for distributed learning and then seek response on those scenarios from the larger stakeholder group."* Another point raised was the need to *"establish an equitable funding framework that initiates partnerships between face-to-face schools and distributed learning environments, not just the Alberta Distance Learning Centre."* Others noted a need to *"declare the funding model in order to transcend the fear-based limited thinking that obscures the other pillars."*

Similarly, some participants identified the need to experiment, demonstrate and apply an action research model through which the development of a pilot program(s) that could form the basis for future design, development and policy decisions. These suggestions generally added that decisions on policy and regulations will require a longer period of time to implement and that the ***"pilot(s) may support informed decision making by offering a local context to decision makers."*** One example of a pilot was to seek *"volunteer schools that would pilot a funding model based on student outcomes versus the Carnegie Unit."*

Long-Term Recommendations

The most prevalent recommendations for Collaborative Leadership were centred around the need for collaboration to embrace informed and planned change to meet the diverse and individual needs of stakeholders. Participants consistently identified the need for a centralized provincial leadership body to *"build a roadmap for distributed learning, implementation plans, finances and quality commitments including operations, standards, assessment, continuous improvement of processes and outcomes and ensuring quality execution of the pillars." Such centralized leadership appears to be needed to "encourage collaboration and/or sharing between school jurisdictions/authorities."*

Comments reflected the need for a *"democratic representation, in a defined manner, within a central leadership body."* Further comments around this theme suggested the need for broad representation on

a stakeholder-driven central leadership body whose membership could rotate on a staggered biennial basis. Participants recommended that membership on this body may be made up of representation from *"Alberta Education, Advanced Education and Technology, post-secondary institutions, industry, College of Alberta School Superintendents, Alberta Teachers' Association, parents, professional development providers, students, Francophone authorities, First Nations, Métis and Inuit, private schools and charter schools."* When defining leadership roles, participants suggested that the school authorities take responsibility for initiating, defining needs and issues and implementation, while a centralized provincial leadership body would be responsible for coordinating resource development; acquisition and access; providing targeted funding for special projects and initiatives; coordinating distributed learning capacity building; fostering continuous improvement; and centralizing technologies, as deemed necessary by education stakeholders.

Participants consistently mentioned that Alberta Education's role would be to set common standards and provide adequate funding to a central leadership body for coordination of content development,for setting standards for development of resources, for monitoring implementation, for providing technology coordination and support, and for supporting continuous improvement of processes and outcomes.

Pillar B: Flexible and Equitable Funding

Review current competitive funding practices for distance learning, (e.g. home education, Alberta Distance Learning Centre), as well as funding practices driven by hours of instruction and classroom size, in order to accommodate collaborative, provincial, distributed learning; provide targeted funding for centralization/ coordination of technology access and deployment, capacity building and collaborative content development, acquisition and availability.

Long-Term Recommendations

Comments reflected the need for funding to be ***"outcomes-based and follow students to provide equity of access to all learning options"*** and for careful consideration to be given to students with special needs and to adult learners.

Many groups recommended that targeted funding should be distributed according to the needs of school authorities and needs to be focused on collaborative development and delivery of resources, on centralized technology standards, access and implementation, and on provincial capacity building programs and opportunities. Recommendations support the notion that such centralized and/or targeted funding be geared toward the implementation of a provincial approach that supports choice for students and parents. Overall, participants commented on the need for a funding mechanism that would *"support the development of the key success pillars rather than lead the design"* of a provincial approach.

Pillar C: Support Seamless Transitions between Learning Environments

Alberta Education to further collaborate with Advanced Education and Technology and post-secondary institutions to formalize agreements for flexible student programming and dual-credit delivery options.

Long-Term Recommendations

With respect to seamless transitions between learning environments, participants recommended that a centralized provincial leadership approach ***"would enable the development of agreements between ECS–12, industry and post-secondary including special initiatives."*** As seamless transitions between learning environments are emphasized and developed, participants suggested that provincial leadership is required to reduce the burden on school authorities in negotiating, administering and forging business partnerships between learning environments. Typically, participants noted **Alberta Education as the main *"conduit for formalizing agreements for flexible student programming and dual-credit delivery options."***

Recommending the ***"establishment of a highly centralized and government-mandated student information management system"*** at the ECS–12 and post-secondary levels, participants believed that essential, timely information about student learning that increases transparency, mobility and access to distributed learning options between learning environments would increase.

Pillar D: Collaborative Coordination of Standardized Content Development and Shared Access

Provide centralized and public access to ECS–12 content developed in Alberta with public funds, coordinating collaborative content development efforts and establishing common content development and access standards.

Short-Term Activities

Participants suggested the need to develop models that foster collaboration and shared standards for distributed learning content development. There was mention of the need to review current approaches, processes, strengths and shortcomings related to content development and collaboration between Alberta Education branches, Alberta Distance Learning Centre, publishers, the 2Learn Educational Network and other third-party content providers. Some comments also suggested that there is value in *"presenting a cost-benefit analysis"* to demonstrate what is working and what is not in terms of collaborative ventures in distributed learning content development. One group clearly states the need to ***"establish a community of resource developers and resource standards."***

In addition to the information gathered and shared during the Discover Phase, stakeholders suggested that the current distributed learning programs and resources be inventoried and shared. The belief appeared to be that jurisdictions involved in distributed learning could benefit by *"taking immediate advantage of and facilitating the progress and efforts currently underway in the province."* Several participants added that it would be beneficil to complete *"a thorough review of the available online/ digital courses, in an effort to establish if the coursework is suited to best practices in a Distributed Learning format."*

Participants also suggested that the *"collaborative development of high-quality, provincially authorized, accessible courses using current course development models continue."* The participants believed that the *"priorities should be new curriculum with a focus on time lines and should be that resources are customized, are available at no cost to all Alberta teachers and are accessible to all students."* Participants spoke to the benefits of *"fast-tracking the development of resources to ensure they are available at the same time as courses are implemented."* A number of groups focused on the need to develop ***"a collaborative model for resource development and cross-jurisdiction sharing in order to expedite the process and reduce redundancy."***

An immediate move to ***"establish standards for resource development across the province"*** also was mentioned by several participant groups, as was the value in *"creating an inclusive centralized resource portal for collaboration."* Some participants suggested that work continue on the development of *"distance learning courses, but there also should be work done on unit- and concept-based learning objects."*

Long-Term Recommendations

Overall, participants recommend that **all resources developed with public dollars should be publicly shared across the province.** They also recommended that school authorities continue developing or modifying the resources based on their local needs with access to and support from a **provincial resource development team**. They noted that such a provincial resource development team would be comprised of Ministry staff and school authority teachers seconded for projects from year-to-year, as needed.

Participants mentioned that the centralization of resource development supported by a provincial resource development team would provide *"maximum choice to the student without duplicating effort (print and online)."* Comments generally represented a need for collaborative content development and further local customization to meet the needs, interests and learning styles of students within a given school jurisdiction/authority. Participants shared the importance of providing educators with the freedom to customize the delivery, materials and overall instruction and assessment in order to realize the potential of personalized learning.

Pillar E: A Culture of Continuous Improvement

Enable real-time access to centrally available student information for success of student choice, mobility and accountability and to enhance learning and teaching flexibility; continue to remove barriers to access and high school completion, transition to post-secondary or the workforce; and ensure equitability between learning environments.

Long-Term Recommendations

Participants of the ECS–12 Distributed Learning Forum indicated an overall preference toward provincial leadership that would *"build a roadmap for distributed learning in terms of continuous improvement of processes and outcomes."* In collaboration with school authorities, including teachers, administrators, students and parents, recommendations reflected the need for centralized provincial leadership to support a provincial continuous improvement framework while recognizing the variables of local conditions and understanding the Ministry's responsibility to monitor such improvement. Overall, participants noted a collaborative approach as the preferred

direction to reflect the best interest of students. Recommendations include that, through ongoing research of emerging and promising practices, a provincial continuous improvement framework should be developed collaboratively to ensure equitable student access to high-quality learning resources and instruction.

Participants recommended that the *"continuous improvement model includes self-assessment, publication, reflection and experimentation"* and should be structured to drive innovation at the school authority level.

Pillar F: Learning Networks for Capacity Building

Support and coordinate the development of a provincial capacity building network to define and build expertise in distributed pedagogical approaches that focus on accommodating student diversity, learning styles, and authentic learning.

Short-Term Activities

A focus on supporting educators through the development of professional learning communities in various subject and interest areas was a theme found in the short-term activity recommendations. The creation of online social networks to continue to build teacher capacity in distributed learning pedagogy and the use of technology through collaborative course and professional development was highlighted. An option presented to inform educators and policymakers around the potential for distributed learning was the use of a ***"pilot program(s) that could act as a precursor to educational and policy decisions.*** *The pilot(s) would allow decisions to be based on a local model that would address infrastructure, funding and professional and course development"* as well as consider guidelines for what are *"reasonable teaching assignments in distributed learning settings."*

Short-term action on capacity building appeared to be a core need in moving forward with a provincial approach to distributed learning. Participant short-term recommendations around capacity building can be organized according to the three key areas of distributed learning networks, preservice training and pedagogy.

1. Distributed Learning Networks: Participants recommended *"a provincial online learning network for teachers/administrators to begin sharing best practices in distributed learning and the use of technology."* Some groups identified the need for *"funding to be designated for teacher time to research, develop, practice and use distributed learning resources in their teaching practice."*

2. Preservice Training: Several groups recommended that schools and government begin working directly with post-secondary institutions in an effort to determine areas of strengths and challenges in preservice education programs related to teaching and learning in distributed learning environments. Some participants suggested *"creating a new culture of teachers as professional content developers."*

3. Pedagogy: It was suggested that *"synthesizing best practices exemplars to model change pedagogy and improved learning"* would be beneficial for teachers in the short-term. Other recommendations focused on the creation of online *"professional learning communities in specific subject/interest areas to build teacher capacity and skills"* in distributed learning. Some groups commented on the need to *"define distributed pedagogical approaches that focus on accommodating student diversity, learning styles and authentic learning experiences."*

Long-Term Recommendations

Recommendations supported the need for provincial leadership that would *"provide direction, planning, programming and implementation of distributed learning"* by increasing connections and building relationships across the province in an effort to build capacity in distributed learning. Stakeholders recommended that a capacity building network be formed that would have *"responsibility for research of best practices and facilitation of the network discussions, learning resources, capacity building and setting common standards."* Participants also recommended that school authorities would be responsible for the local management of information related to their respective local professional learning communities and be empowered with support from stakeholders across the province.

Participants consistently focused on the need for increased connections via a central online social networking platform, with jurisdictional and provincial cross-linked spaces, that could be accessed anytime and anyplace. They stated that education stakeholders, including teachers, students, parents, administrators and industry, should have the ability to build a community of inquiry using new methods to communicate in a professional learning environment. Participants also recommended that *"professional development providers would be responsible for providing access to a capacity building network (with Web 2.0 technologies) to connect educators, parents, community, and industry to distributed learning knowledge building opportunities."* Such opportunities to connect, lead, and/or gain expertise from a collective membership is seen consistently as beneficial within a provincial approach to distributed learning.

Pillar G: Personalized Program Design and Assessment

Support, coordinate and mandate the development of provincially accessible student-centred personalized program plans.

Long-Term Recommendations

To support student planning, mobility and accountability for learning, participants suggested moving toward a student-centred personalized program plan, which would be provincially accessible and meet minimum standards, including requirements outlined in provincial programs of study. Participants consistently mentioned that ***"real-time access to student information is necessary for the success of student choice, mobility and accountability."*** Similarly, participants also recommended the ***"establishment of a highly centralized and government-mandated student information management system."*** Some comments also suggested an understanding among stakeholders that the current Provincial Approach to Student Information (PASI) will help support these recommendations.

The group generally noted that the *"most responsible organization for the development and monitoring of [personalized program plans] falls to the local school authority."* There was a general belief reflected in the recommendations that *"personalized program design and assessment are optimized when the teacher and school authority are responsible for ensuring that program designs are characterized by choice, flexibility and accessibility in order to support development of high-quality, authentic learning opportunities and personalization of student learning."*

Similarly, suggestions were made that the role and level of standardized assessment be re-examined in light of provincially assessing *"21st century skills"* and supporting school authority leadership in personalizing student assessment when needed.

PILLAR H
Equitable access to technology

Pillar H: Equitable Access to Technology

Standardize and centralize relevant technologies that support distributed learning; i.e., learning/content management systems, ePortfolio hosting, social networking software and student information systems, to provide equitable access to these technologies.

Short-Term Activities

Generally, participants focused on the need to *"ensure equitable access to the Internet for students at home, regardless of rural/urban settings."*

The **need to standardize and centralize relevant technologies** was believed to be ***"the solution to creating an even playing field."*** Similarly, *"software/hardware agreements and a common language in distributed learning technologies"* were raised as areas needed to ensure continuity across the province.

Some participants suggested that the following centralized technology solutions be a focus of discussion and examination as the Define Phase progresses.

- Provincial Learning Management System/Content Management System (one group specifically suggested a move toward a ***"standardized provincially funded Learning Management System that can be in place and available to all teachers regardless of the long-term result of the strategy")***
- synchronous tools; e.g., videoconferencing, electronic whiteboards, Bridgit servers
- ePortfolio hosting
- social networking software/platform
- Provincial Learning Object Repository accessible to all educators
- common student information system; e.g., Provincial Approach to Student Information (PASI). Many participants identified PASI as a relevant initiative and noted that the development of a shared *"backbone"* to distribute student information may be the focus of a collaborative pilot.

Participants recommended that a provincial inventory of the above-mentioned technologies be conducted to better understand the impact and implications of centralizing and/or standardizing these technologies provincially.

Another common theme was the need for an analysis of *"how social networking sites are currently used, how they could be used, and what is preventing their use in so many school jurisdictions/authorities."* Participants also identified the need for stakeholders to collaborate in order to mitigate risks and increase benefits of the use of social networking platforms in education in Alberta. Security was seen as an area to be addressed in the short-term by looking at what is and what is not blocked in various school authorities.

Long-Term Recommendations

The need for provincial technology standards to ensure interoperability and include **minimum technology access requirements at the student level** was a common theme in recommendations for this pillar. Many believed that to set these minimum technology standards, all school authorities need to have an *"equal voice to ensure representation of unique regional needs."* Participants noted *"equitable access must be quality access and be globally competitive."* There also seems to be consensus that *"opportunities for innovation, customization and diversity at the school jurisdiction/*

authority level are integral to the system." There also were suggestions that the scope of the provincial approach to distributed learning be expanded to encompass all students in the province of Alberta, including students in federally funded, private and charter schools. Participants added that to ensure true equity of student access to quality programming and to achieve cost efficiencies, a provincial learning portal would need to be created. They recommended that such a portal be accessible to all stakeholders, including those in the expanded scope.

Participants noted the need for a centralized provincial leadership approach to *"provide access to technology to support personalized learning in a distributed learning environment; e.g., learning at home, learning abroad, self-paced learning, flexible location for learning."* Participants generally believed that such a provincial and centralized focus on technology would allow for *"flexibility for provincial direction and for local input to accommodate local students, teachers, parents"* and community needs. They also noted that a centralized, provincial approach would assist in pooling necessary resources for *"specialized service needs like assistive technologies and access to learning resources and student information."* Comments also suggested that access may be *"leveraged by the notion of consumer-based delivery, with ongoing funding to ensure access 24/7/365."* The recommendation appeals to the need for *"provincial funding for technical support to fill in the gaps that school jurisdictions are unable to fill themselves given the desired access 24/7/365. This means high-speed Internet access and support in all communities and homes."* At the same time, participants suggested that consideration of *"the needs and capabilities of the students for usability, support and availability"* be the driving forces in determining minimum access levels.

General Feedback: Communication, Collaboration and Partnership

Collaboration was recommended as the main driver for *"a way to change attitudes and guide future thinking"* and was the most consistent short-term recommendation shared by participants. Recommendations around collaboration fell into three subsets representing the need for 1) ongoing communication, 2) clarity, and 3) research.

1. Ongoing Communication

- Secure social networks like the online forum are seen as valuable as the Strategy moves forward. The information sharing between online participants was suggested as an example of best practice sharing, as well as a form of capacity building between stakeholders. Several stakeholder groups indicated that ongoing conversation and communication through online forums would be a valuable mode to encourage collaboration.
- The need for increased communication through a coordinated *"communication plan"* was identified by a number of participants and was suggested in an effort to increase stakeholder input and awareness about distributed learning in Alberta at the public and political levels. The increased awareness was in relation to possible roles, needs, knowledge, skills and attitudes. There also was consistent mention of the need to very clearly focus on the voice of stakeholder groups such as parents, students, school boards, senior administrators and industry.
- Participants felt that feedback on the key success pillars from the November 4, 2008 Forum should be shared with participants, as well as with other stakeholder groups, in an effort to provide opportunity for discussions, garner further input, build awareness and educate the larger community about the possibilities of distributed learning. In addition, one group suggested the need to *"develop professional learning around the analysis of case studies, which can be framed from a variety of stakeholder perspectives."*

- Other key feedback on recommended short-term activities includes:
  - implement a *"public relations strategy with the ATA to engage and educate teachers"* about distributed learning and help them to *"see that DL is not a threat"*
  - define *"what is non-negotiable for government"* and *"share that information with stakeholders"*
  - establish a *"small representative working group to set up distributed learning designs,"* including scheduling *"a series of focus groups to hash out the details"*
  - *"continue to model collaboration and communication in a distributed mode"*

2. Clarity

- The need for clarification of terminology as it relates to distributed learning in Alberta, specifically within discussions of the key success pillars, was noted in a number of stakeholder submissions. Clarity around the terminology and developing a *"common language"* between the various stakeholder groups was identified as a key short-term activity to be addressed during the Define Phase. The suggestion to *"articulate the 'Alberta position' on each of the pillars and communicate it relentlessly so that structural, philosophical and pedagogical shifts can begin."* One method of communication suggested by a few was the benefit of "*hosting a second forum to share the outcomes of the event and re-engage*" the larger stakeholder community.

3. Research

- Participants recommended that best practices around governance, funding, resource allocation and development, capacity building, flexibility, standards and accessibility for all students be identified as part of a collaborative process with stakeholders. There also was consideration for establishing a *"steering committee along the lines of the Western Canadian Protocol versus just Alberta"* in an effort to expand the expertise and input from a larger body of education stakeholders. Additionally, there were many references to the need for responsive processes that can adopt and adapt to the changes in technologies and advancement of distributed learning locally and globally.

Conclusions and Next Steps

The purpose of the Discover Phase of Alberta's Distributed Learning Strategy was to develop a comprehensive needs assessment, which outlines the current state and emerging trends and helps to define the strengths and gaps between current and future distributed learning needs in Alberta. Most importantly, it was designed to help create sustained commitment and shape a common vision and future direction for distributed learning in the province.

Throughout the Discover Phase, Alberta Education engaged its staff, stakeholder organizations, post-secondary institutions, students, teachers, parents and industry in:

- assessing the current environment
- understanding the needs of all participants
- developing a variety of distributed learning possibilities
- identifying strengths, challenges and implications of distributed learning possibilities from which to develop and validate short- and long-term recommendations toward a provincial approach to distributed learning.

This thorough and collaborative stakeholder involvement process helped to create a common understanding of how learning can be distributed to meet the diverse needs of our student population in a world of distanced interaction and distributed collaboration networks. The findings from the Discover Phase demonstrate that distributed learning has the potential to redefine learning opportunities by overcoming the barriers of time and location and helping us move to a flexible approach to learning that is focused on accommodating students' scheduling, learning styles and learning needs in the 21st century. The findings also demonstrate that collaborative and sustainable relationships are fundamental to achieving the key success pillars identified and that a broad commitment to distributed learning and sound, coordinated planning is required, all the while putting students at the centre of our decision-making and policy development processes.

Overall, the Discover Phase of Alberta's Distributed Learning Strategy identified the need for a provincial approach to distributed learning that:

- promotes flexibility and collaboration, allowing learning to take place anytime, anyplace and at any pace
- ensures common pedagogical and technological standards
- builds strong relationships between students, teachers, parents and school authorities
- enables centralized and coordinated content access, use and development to meet the diverse needs of students in a variety of learning environments
- builds systemwide capacity for equitable and ubiquitous student and teacher access to technology.

The needs analysis and recommendations gathered during the Discover Phase will form the basis for future planning. Alberta Education will carefully consider and evaluate the implications and costs and benefits of feedback provided, and will continue to work with education stakeholders at defining a provincial approach to distributed learning. Furthermore, as the Ministry engages in '*Inspiring Education: a Dialogue with Albertans*' consideration will be given to how distributed learning affects and fits within Alberta's new vision for education and what implications it has on a potential new policy framework to support 21st century teaching and learning.

Glossary

Accessible–readily available to the individual or group of interest, with minimal constraints or barriers and may apply to information, knowledge, services and teaching and learning resources.

Assessment–any of a variety of procedures used to obtain information about student performance and learning needs. It helps to identify potential, necessary pedagogical adjustments and supports to best meet students' learning needs and help improve their performance.

Assistive Technology for Learning (ATL)–the devices, media and services used in learning environments to overcome barriers for students with physical, sensory, cognitive, speech, learning or behavioural special needs, to help these students actively engage in learning and to help them achieve their individual learning goals.

Capacity building–the process of leveraging collective insights, knowledge and experience by building shared knowledge and understanding of issues to improve the ability to impact change and respond to issues in a proactive way. Capacity building is generally facilitated through the provision of support activities, including coaching, training, specific technical assistance and learning networks.

Carnegie Unit (or student hour)–a theoretical construct which equates time with learning. The Carnegie Unit was initially developed in 1906 to standardize the minimum requirement for a high school student's academic preparation. In Alberta, the Carnegie Unit has been interpreted as 25 hours of time spent in face-to-face instruction to gain 1 credit toward a high school diploma.

Collaborative leadership–a process and form of leadership in which participants representing people or organizations with interest in the questions at hand are empowered to collectively make decisions as a leadership body or to provide recommendations to a final decisionmaker, who will not change substantially consensus recommendations from the group.

Continuous improvement–an ongoing effort to improve products, services or processes. These efforts can seek "incremental" improvement over time of their efficiency, effectiveness and flexibility; i.e., Action Research Model.

Credit–a unit used to measure the attainment of program outcomes by high school students. In the province of Alberta, a student must attain 100 credits in specified disciplines to be granted a high school diploma.

Digital resource–teaching and learning resources created for use within a digital medium; i.e. computer, the Internet.

Distance education (or distance learning)–a method of learning in which students and teachers are not physically present at the same location. Instead, teachers and students exchange printed or electronic media and information, and use technologies that allow them to communicate asynchronously or in real-time. Distance education programs are sometimes called correspondence courses, an older term that originated in the 19th century.

Distance learning module–a self-contained package, typically available in print format, that may consist of content and learning activities for students who are engaged in self-directed learning and/or independent study.

Distributed learning–a flexible approach to learning that allows teachers, students and content to be located in different, noncentralized locations, extending learning environments beyond the classroom. It includes all forms of learning where, by design, students and their teachers may be separated by time and/or space for some or all of their interactions. In practice, students benefit from distributed learning through a range of learning options through flexible scheduling, flexible pacing and varying levels of structure depending on their needs and learning styles. Such learning options are provided in a variety of delivery formats and mediums — print, digital, Web-based, face-to-face and in a variety of environments — classroom, online education, work experience, project-based learning and independent study.

Distributed learning resources–Teaching and learning resources that have been designed purposefully to engage learners and to be accessed and used by all teachers and students who may be separated in time and/or space for some or all of their interactions.

eLearning–most frequently used to refer to computer-based training, which incorporates technologies that support interactivity beyond that which would be provided by a single computer. It is an approach to facilitate and enhance learning through, and based on, computer and communications technology; e.g., personal computers, CD-ROMs, digital television, write out PDAs, mobile phones, the Internet, e-mail, discussion forums, collaborative software, team learning systems.

Equitable access–fair to all parties as dictated by reason and conscience; an equitable distribution of resources among school authorities; equitable does not mean equal.

Grade (or mark)–a specific number resulting from assessment of a student's performance. (See Assessment.)

Inclusion–an attitude and an approach that encourages belonging and creates the best learning opportunities for all students, including students with special needs.

Just-in-time learning–accessing information when needed in order to build a stronger understanding in a short period of time.

Learning and teaching resources–content and software delivered in an organized and usable form to a teacher or student in support of the teaching and/or learning processes.

Learning network–a social network of colleagues who share knowledge and understanding by connecting multiple voices and ideas to model, share, support and advocate for a common issue typically through the use of communication technologies. Learning networks are a medium for colleagues to mentor each other, seek outside expertise and/or learn from each other's experiences.

Mission–a clear, concise description of the project's overall purpose and role, giving direction to the programs and services provided.

Multitasking–the act of undertaking more than one task at one time.

Online course–a unit of teaching delivered over the Internet that typically lasts one semester or academic term, is delivered by one or more teachers to a specific cohort of students and gives each student a grade/mark and credit.

Online learning–an umbrella term used to describe any education or training that occurs on the Internet.

Online students–students who register in online courses.

Outcome–the specific, measurable result that is evident after having achieved the goal(s) we seek to achieve. In broad terms, an outcome answers the question: "*What will it look like when we get to where we want to be*?"

Pedagogy–the art or science of being a teacher. The term generally refers to strategies or a style of instruction.

Personalized learning–focuses on the strengths of the student and addresses not just what the student needs to do but also what the system needs to do to promote better learning opportunities for every student. Personalized learning affords the learner a degree of choice about what is learned, when it is learned and how it is learned. This does not mean unlimited choice, since learners will still have targets to be met. However, it gives learners the opportunity to learn in ways that suit their individual learning need and embraces learning that happens anywhere.

Personalized learning profile–identifies individual learning needs of the student as well as the resources and supports needed to meet the needs. A personalized learning profile tracks the progress and performance of each student across many domains including attendance, behaviour, grades and test scores. This point-in-time snapshot of a student's current status efficiently communicates performance on specific measures within each domain and allows quick attention to student needs.

Regular school (or traditional school)–a course(s) or program that is delivered solely face-to-face at a school site, under the instruction and complete supervision of a certificated teacher.

Resources–anything that can be used for support or help and can be drawn on when needed. In most cases in the context of this report, resources is synonymo · to learning and teaching resources. Resources also can include human and financial resources.

School authority–public and separate school jurisdictions, Francophone school authorities, charter schools and private schools.

Student–every individual who at September 1 in a year is six years of age or older and younger than 19 years of age and has access to an education program in accordance with the *School Act*.

Universal Design for Learning (UDL)–a set of principles that guide the design of flexible learning environments, resources and activities to accommodate individual learning differences. UDL is intended to increase access to learning by reducing physical, cognitive, intellectual and organizational barriers to learning, as well as other obstacles. A UDL approach calls for creating curriculum, learning environments and resources from the outset that provide multiple means of representation to give learners various ways of acquiring information and knowledge; multiple means of expression to provide learners with alternatives for demonstrating what they know; and multiple means of engagement to tap into learner interests, to challenge them appropriately and to motivate them to learn.

Virtual school–an institution that teaches courses entirely or primarily through online methods. (See Online learning.)

Vision–a brief statement describing the ideal, future state of the organization. It articulates a view of a realistic, credible, desired future.

Web 2.0 technologies–the technologies that focus on the interconnectivity and interactivity of Web-delivered content. The aim of Web 2.0 development is to facilitate communication, secure information sharing, interoperability and collaboration via the Internet.

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Appendix I: Stakeholder Involvement Methodology

Survey

An online survey was conducted in May and June 2008 by CCI Research Inc. (members of the expert working groups developed the survey questions). The survey was available in both English and French. A total of 1774 surveys were completed by respondents. The survey was used to gather and quantify both factual and attitudinal information about the current distributed learning landscape related to learning and teaching resources, technology use and infrastructure.

The surveys (English May 27–June 13, 2008; and French June 2–June 18, 2008) focused on the current situation and were addressed specifically to teachers and principals in the following areas.

- Resource Development: current resource development practices, models and issues with a specific focus on collaborative resource development.
- Resource Access: where and how teachers, principals, and students in schools are accessing learning and teaching resources for distributed learning.
- Resource Use: the context in which teachers, principals and students use teaching and learning resources.
- Technology Use: the breadth and trends of technologies being used that allow learning to take place independent of time and/or location.

Focus Groups

Twenty-eight focus groups were held to gather input from Alberta Education staff and engaged stakeholders on the following key topics:

- teaching and learning practice
- content access and development
- governance and leadership
- technology.

Facilitators focused on obtaining the following information:

- a comprehensive description of current distributed learning practices
- identification of current and emerging trends
- recommendations toward possible structures that need to be in place for a sound provincial approach to distributed learning.

To encourage ongoing communication, collaboration and networking among stakeholders, summaries of the focus group conversations were posted on a shared site for further viewing and commenting. The expert working groups further compiled and analyzed the data, along with data from the survey, interviews and site visits.

Interviews

CCI Research Inc. conducted 62 of 75 possible interviews. The interviews were with individuals who were not involved in the focus group discussions. Individuals interviewed included professional development providers, parents, post-secondary instructors and administrators, technology vendors, and distributed learning professionals from across Canada. The interview questions were designed by the expert working groups, and were structured to enable participants to identify those issues they believe to be critical to their role and performance in the distributed learning process as related to:

- strengths
- areas for improvement
- ideas for future development.

Invited interviewees who were not able to participate, due to timing and work schedules, were given the opportunity to respond to the interview questions via e-mail.

Site Visits

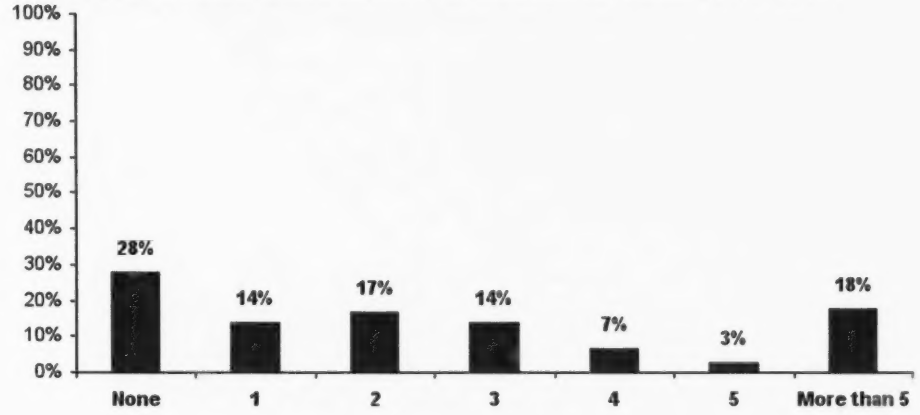
Expert working group members conducted 21 site visits. These provided an opportunity for schools and school jurisdictions to showcase their promising practices, for consideration in future planning, and provided a concrete snapshot of distributed learning in the province, as it exists today. Similar to the interviews conducted by CCI Research Inc., site visits provided an opportunity to ask administrators, teachers and students specific questions about distributed learning strengths, areas for improvement and ideas for future development. Specifically, site visit participants were asked to: 1) showcase their program or initiative demonstrating distributed learning 'in action'; 2) include a teacher, principal and onsite technology support representative in a conversation around the distributed learning vision, trends, areas for improvement and ideas for possible futures for distributed learning in Alberta; and 3) include a group of students in a conversation around their experiences (positive and challenging) with distributed learning.

Appendix II: Teacher Professional Development for Distributed Learning

As shown in Chart 4, most respondents of the online survey (73%) have accessed at least one professional learning opportunity in order to build their knowledge and capacity in distributed learning, with 18% having accessed more than five professional development opportunities.

Chart 4

Approximately, how many professional learning opportunities have you accessed to build your knowledge and capacity in distributed learning? (n=1746)

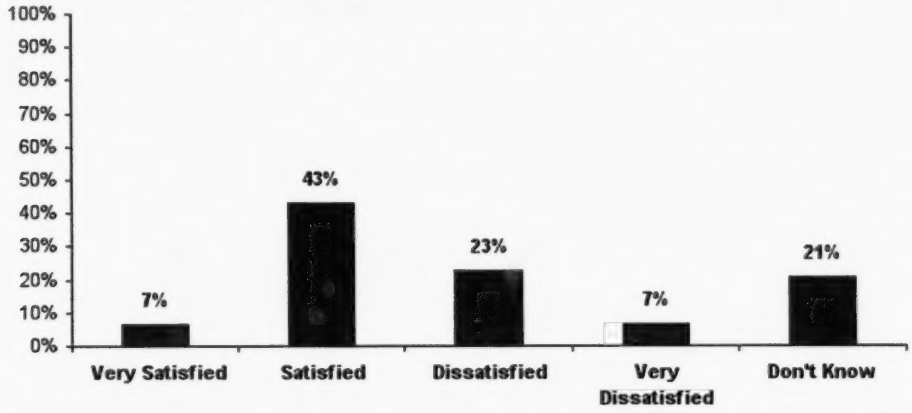


Additional analysis revealed that respondents who are not currently involved in distributed learning are more likely to report they have never accessed any professional learning opportunities to build their knowledge and capacity in distributed learning. Also, respondents who have been involved in distributed learning for more than five years are more likely than those who have been involved for two years or less to report that they have accessed more than five professional learning opportunities related to distributed learning.

In general, about half of the respondents are satisfied (7% very satisfied and 43% satisfied) with the availability of professional learning opportunities to build knowledge and capacity in distributed learning. (See Chart 5.) However, 23% are dissatisfied and 7% are very dissatisfied with the professional learning opportunities. Note that 21% reported that they don't know.

Chart 5

How satisfied are you with the availability of professional learning opportunities to build your knowledge and capacity in distributed learning? (n=1742)



Additional analysis revealed that respondents who are currently involved in distributed learning are more likely to be satisfied with the availability of professional learning opportunities related to distributed learning, whereas those who are not currently involved with distributed learning are more likely to report that they do not know their level of satisfaction.

Respondents overwhelmingly indicated that they believe face-to-face learning would be the most useful professional learning opportunity in building knowledge for distributed learning (76%). (See Table 4.) The next most common methods are face-to-face professional learning communities (49%), followed by conferences (39%), online training (32%), and online professional learning communities (22%). The opportunities thought to be most useful in building knowledge and capacity in distributed learning, interestingly, include nondistributed methods.

Table 4

What type of professional learning opportunities do you believe would be most useful in building your knowledge and capacity in distributed learning? (n=1744)

	Number of Responses	Percentage of Responses
Face-to-face learning	1320	76%
Face-to-face professional learning communities	859	49%
Conferences	684	39%
Online training	563	32%
Online professional learning communities	384	22%
Other (specify)	70	4%
Don't know	72	4%

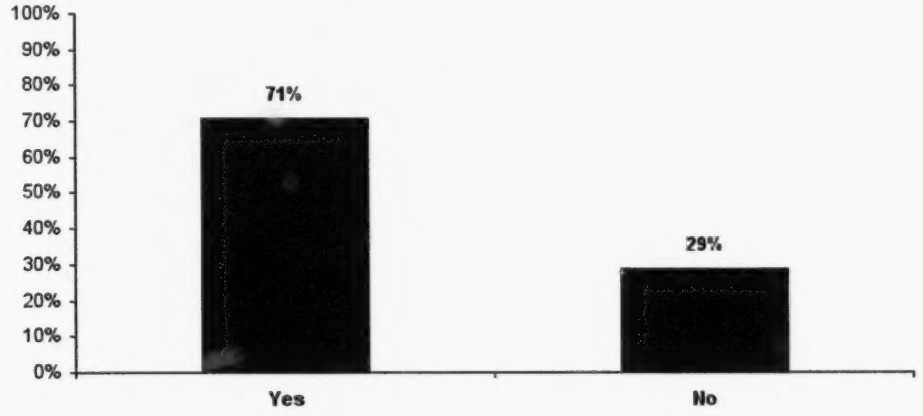
Appendix III: Teacher Technology Use

Teachers' Self-Reported Technology Skills

Seventy-one percent of respondents to the June 2008 online survey, reported using technology to enable distributed learning in their teaching practice. These respondents describe teaching as part of their primary job function. (See Chart 6.)

Chart 6

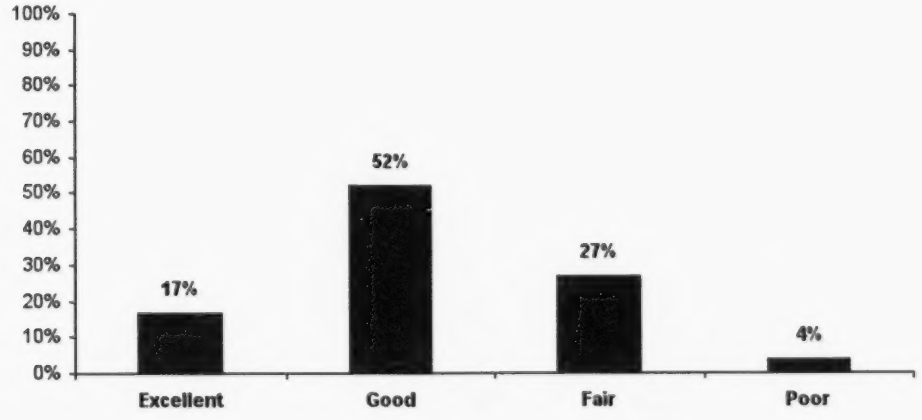
Do you use technology to enable distributed learning in your teaching practice? (n=1490)



Seventeen percent reported that they are excellent, 52% reported that they are good and 27% reported that they are fair in the use of technologies in their teaching practice. (See Chart 7.)

Chart 7

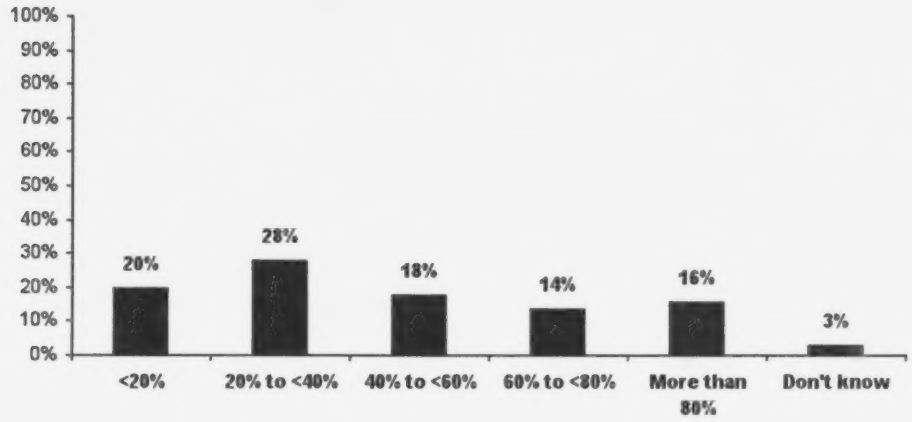
How would you rate your skill level in the use of technologies in your teaching practice? (n=1450)



Of those respondents who indicated that teaching is a part of their primary job function and that they are currently involved in distributed learning, approximately two-thirds (66%) reported spending less than 60% of their teaching time each week using technologies that allow learning to occur independent of time and/or space. (See Chart 8.)

Chart 8

Thinking of your total time spent teaching in an average week, how would you rate the amount of time spent using technologies which allow learning to occur independent of time and/or space? (n=566)

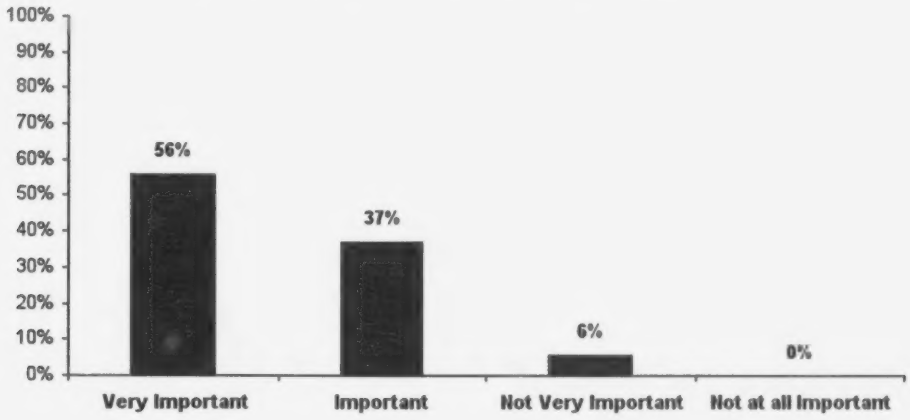


Importance of Technology in Learning and Teaching

As shown in Chart 9, almost all respondents feel that technology is very important (56%) or important (37%) in learning and teaching to allow learning to occur independent of space and/or time.

Chart 9

In your opinion, how important is technology in learning and teaching to allow learning to occur independent of space and/or time? (n=1738)



Types of Technology Hardware Used in Teaching Practice

Respondents to the online survey who describe teaching as part of their primary job function were asked what type of technology hardware, if any, they use in their teaching practice (See Table 5). The most common type of technologies used are the Internet (92%) and desktop computers (87%). About two-thirds (65%) of respondents reported using presentation technology, and about half reported using production technology (53%) or recording technology (51%). Slightly less than half use laptop computers (45%) or communication technology (44%). The remaining items are mentioned by 4% to 28% of respondents. Only 1% reported that technology hardware is not applicable to them.

Table 5

What technology hardware, if any, do you use in your teaching practice? (n=1500)

	Number of Responses	Percentage of Responses
Internet (wireless or cable)	1381	92%
Desktop computer(s)	1300	87%
Presentation (interactive whiteboard, LCD projector)	969	65%
Production (digital printer/copier)	801	53%
Recorder (digital camera, digital video camera)	772	51%
Laptop computer(s)	678	45%
Communication [fax machine, telephone (landline), audio conferencing]	662	44%
Assistive technology (any product, device, or equipment used to maintain, increase, or improve the functional capabilities of individuals with special needs)	423	28%
Personal digital devices (MP3, PDA, cellphone)	290	19%
Videoconferencing	272	18%
Teleconferencing	75	5%
Gaming hardware	72	5%
Tablet computer(s)	66	4%
Other (Specify)	85	6%
Not applicable/I don't use technology hardware in my teaching practice	20	1%

Respondents who have been involved with distributed learning for more than five years are more likely than those who have been involved less than one year to use communication technology in their teaching practice.

Importance of Technology Hardware to Teaching Practice

Respondents to the online survey who describe teaching as part of their primary job function and make use of technology hardware in their teaching practice were asked how important they felt various types of technology are to their teaching practice. (See Table 6.) Almost all respondents believed that the Internet (95%) and desktop computers (91%) are important; about four in five indicated that production technology (83%) and presentation technology (82%) are important; and 71% indicated that communication technology is important in their teaching practice. Approximately two-thirds said that laptop computers (65%), recording technology (64%), and assistive technology (62%) are important. The remaining aspects are viewed as noticeably less important.

Table 6

For each of the following, please indicate how important the technology hardware is to your teaching practice. (n=517–1452)

	Very Important + Important	Very Important	Important	Not Very Important	Not At All Important	Don't Know
Internet (wireless or cable)	**95%**	78%	17%	3%	1%	1%
Desktop computer(s)	**91%**	69%	22%	5%	3%	1%
Production (digital printer/copier)	**83%**	58%	25%	6%	6%	6%
Presentation (interactive whiteboard, LCD projector)	**82%**	53%	29%	9%	5%	5%
Communication [fax machine, telephone (landline), audio conferencing]	**71%**	43%	28%	12%	10%	7%
Laptop computer(s)	**65%**	43%	22%	12%	13%	11%
Recorder (digital camera, digital video camera)	**64%**	26%	38%	20%	9%	7%
Assistive technology (any product, device, or equipment used to maintain, increase, or improve the functional capabilities of individuals with special needs)	**62%**	33%	29%	10%	9%	19%
Personal digital devices (MP3, PDA, cellphone)	**27%**	10%	17%	25%	30%	18%
Videoconferencing	**26%**	7%	19%	27%	25%	21%
Tablet computer(s)	**14%**	7%	7%	11%	27%	48%
Teleconferencing	**14%**	4%	10%	29%	32%	26%
Gaming hardware	**11%**	2%	9%	24%	45%	21%
Other	**15%**	10%	5%	3%	11%	71%

Note that the four aspects reported to be the most frequently used (Table 5) are also those that received the highest importance ratings. (See Table 6.)

Type of Software/Programs Used in Teaching Practice

Respondents, who indicated that teaching is a part of their primary job function, were asked about their use of software/programs in their teaching practice. (See Table 7.) Productivity software is the most commonly used software (85%), followed by communication tools (64%). Over half of the respondents reported using multimedia software (57%) or assessment software (53%), while slightly less reported using drill-and-practice software (47%) or demonstration/presentation software (41%). The remaining software/programs are mentioned by 6% to 37% of the respondents. Only 3% mentioned that software/programs are not applicable to them in their teaching practice.

Table 7

What software/programs, if any, do you use in your teaching practice? (n=1474)

	Number of Responses	Percentage of Responses
Productivity (word processing, spreadsheets, database)	1250	85%
Communication tools (e-mail, discussion forums, instant messaging, chat)	942	64%
Multimedia (users prepare project using sound, pictures, graphics, video, text, and/or hypertext)	841	57%
Assessment (online quizzing, self-check tools)	774	53%
Drill and practice (practice concepts, keep track of individual progress)	697	47%
Demonstration/presentation (assists users to prepare computer presentations)	609	41%
Problem solving (require strategy and input)	541	37%
Games (generally a drill-and-practice format with a winner or top score option)	529	36%
Online tutorials (present a new concept)	510	35%
Assistive technology (software that allows accessibility to users who otherwise would not have access, typically due to a special need)	329	22%
Learning management system	296	20%
Simulation (tool used for integrating various disciplines in to a specific unit)	248	17%
Collaboration tools (Wikis, application sharing)	184	12%
Groupware (viewed and accessible to groups)	159	11%
Social networking software/sites	130	9%
Authoring (users develop computer programs in computer languages)	88	6%
Other	31	2%
Not applicable/don't use software programs in teaching practice	46	3%

Additional analysis revealed that respondents who are currently involved in distributed learning were more likely to report using learning management systems, online tutorials and demonstration/ presentation software in their teaching practice. Further, respondents who have been involved in distributed learning for three to five years are more likely to report using learning management systems, than those with less than one year of involvement. Lastly, respondents with less than one year of involvement are the least likely to report using online tutorials in their teaching practice.

Importance of Software Resources in Teaching Practices

Respondents who indicated that teaching is a part of their primary job function and use software resources in their teaching practice were asked how important they feel various types of technology software are to their teaching practice. (See Table 8.) Almost all respondents (91%) felt that productivity software is important to their teaching practice, while 80% indicated that communication software is important and a similar proportion (77%) reported that multimedia is important. About two out of three respondents indicated that reference software (69%), assessment software (66%), and demonstration/presentation software (64%) is important. Over half believed that drill-and-practice software (58%), problem-solving software (57%), and online tutorials (55%) are important to their teaching practice. The remaining aspects are viewed as important by less than half of the respondents. Note that the three aspects reported to be the most frequently used (Table 7) are also those that received the highest importance ratings. (See Table 8.)

Table 8

For each of the following, please indicate how important the technology software is to your teaching practice. (n=457–1383)

	Very Important +	Very Important	Important	Not Very Important	Not At All Important	Don't Know
Productivity (word processing, spreadsheets, database)	**91%**	65%	26%	3%	2%	3%
Communication tools (e-mail, discussion forums, instant messaging, chat)	**80%**	56%	24%	9%	6%	4%
Multimedia (users prepare project using sound, pictures, graphics, video, text, and/or hypertext)	**77%**	43%	34%	11%	6%	6%
Reference	**69%**	34%	35%	11%	8%	12%
Assessment (online quizzing, self-check tools)	**66%**	28%	38%	15%	12%	8%
Demonstration/presentation (assists users to prepare computer presentations)	**64%**	29%	35%	12%	11%	13%
Drill and practice (practice concepts, keep track of individual progress)	**58%**	19%	39%	19%	13%	9%
Problem solving (require strategy and input)	**57%**	21%	36%	14%	13%	15%
Online tutorials (present a new concept)	**55%**	21%	34%	18%	14%	13%
Assistive technology (software that allows accessibility to users who otherwise would not have access, typically due to a special need)	**49%**	21%	28%	13%	16%	23%
Games (generally a drill-and-practice format with a winner or top score option)	**45%**	12%	33%	22%	18%	14%
Simulation (tool used for integrating various disciplines in to a specific unit)	**44%**	17%	27%	20%	16%	21%
Learning management system	**42%**	19%	23%	11%	12%	34%
Groupware (viewed and accessible to groups)	**32%**	10%	22%	19%	20%	29%
Collaboration tools (Wikis, application sharing)	**28%**	9%	19%	19%	19%	34%
Social networking software/sites	**22%**	6%	16%	20%	27%	30%
Authoring (users develop computer programs in computer languages)	**20%**	7%	13%	19%	33%	28%
Other	**12%**	5%	7%	5%	12%	70%

Additional analysis revealed that respondents who are currently involved in distributed learning are more likely to report that learning management systems are very important to their teaching practice. Also, respondents who have been involved in distributed learning for more than five years are more likely to report that drill-and-practice software is very important to their teaching practice than those with one to two years of involvement. Those with less than one year of involvement are less likely than those with one to two years of involvement to report that drill-and-practice software is important to their teaching practice. Respondents with three to five years of involvement are more likely than those with less than one year of involvement to report that communication software is very important to their teaching practice. Lastly, those with more than three years of involvement in distributed learning are more likely than those with less than one year of involvement to report that assessment software is very important to their teaching practice.

Appendix IV: Resource Access, Use and Development

Resource Access

Respondents to the online survey were asked to indicate which learning and teaching resources they have access to, regardless of whether or not they were currently using them. (See Table 9.) The results were reported as follows.

- Respondents most commonly have access to textbooks (94%), LearnAlberta.ca (93%), CDs/DVDs (86%), and support resources (i.e., Guide to Implementation, 83% and Tools4Teachers.ca, 78%).
- Respondents are less likely to have access to wikis (20%) or online social networking sites (15%), both of which are Internet resources.
- Of those who indicated having access to other teaching and learning resources, regardless of current usage (8%), mentioned videos, iPods/MP3s, SMART boards, audiocassettes, United Streaming, videoconferencing, Central Alberta Media Services (CAMS), as well as other various unique items.

About three out of four of all respondents have accessed learning and teaching resources from Alberta Education (75%) or from third-party vendors (74%), while over half (58%) have accessed learning and teaching resources developed in their school or school district.

Table 9

For each of the following, please indicate which learning and teaching resources you have ACCESS to (even if you do not currently use them). (n=1762)

Print	Number of Responses	Percentage of Responses
Textbooks	1660	94%
Support Resource (i.e., Guide to Implementation)	1454	83%
Correspondence course packages	683	39%
Other print materials	531	30%
Internet		
LearnAlberta.ca	1632	93%
Tools4Teachers.ca	1372	78%
Online video/podcasts	793	45%
Other online resources	754	43%
Wikis	354	20%
Online social networking sites	269	15%
Miscellaneous		
CDs/DVDs	1515	86%
Other	136	8%

Additional analysis revealed that respondents currently involved in distributed learning are more likely to report that they have access to correspondence course packages than those who are not currently involved in distributed learning. Also, respondents who have been involved with distributed learning for one to two years are the least likely to report they have access to wikis.

When asked about barriers to accessing learning and teaching resources, respondents most often reported that there are no barriers to most of the online resources; however, there are exceptions for some of the print materials, such that 70% mention cost as a barrier to the access of textbooks while 53% mention cost as a barrier to other print materials. Internet access also is reported by some as a barrier to accessing learning and teaching resources. (See Table 10.)

Table 10

Please indicate which barriers, if any, exist with respect to accessing each of the following learning and teaching resources.

	Cost	Geographic Location	Language	District Priorities	Internet Access	Provincial Policy	No Barriers
Print							
Textbooks (n = 1689)	70%	4%	6%	10%	4%	4%	25%
Correspondence course packages (n = 1288)	27%	3%	3%	8%	4%	2%	61%
Support Resource (i.e., Guide to Implementation) (n = 1505)	26%	2%	3%	5%	4%	2%	65%
Other print materials (n = 1444)	53%	4%	4%	6%	4%	3%	40%
Internet							
LearnAlberta.ca (n = 1535)	1%	0%	2%	1%	14%	1%	82%
Tools4Teachers.ca (n = 1448)	2%	1%	2%	1%	13%	1%	83%
Other online resources (n = 1443)	11%	1%	2%	5%	20%	2%	65%
Online social networking sites (n = 1146)	3%	1%	1%	14%	21%	2%	62%
Wikis (n = 1053)	3%	1%	1%	8%	17%	2%	73%
Online video/ podcasts (n = 1269)	11%	2%	2%	8%	25%	1%	58%
Miscellaneous							
CDs/DVDs (n = 1478)	41%	3%	3%	4%	2%	2%	52%
Other (n = 670)	16%	1%	1%	2%	3%	1%	78%

Overall Resource Use

Online survey respondents who described teaching as part of their primary job function were asked to indicate how often they use a series of specific learning and teaching resources in their teaching practice (See Table 11.) The results were reported as follows.

- The most common daily resources include textbooks (49%) and other print materials (45%).
- The most common weekly resources include other online resources (39%), other print materials (33%), CDs/DVDs (31%), and support resources (i.e., Guide to Implementation) (30%).
- Respondents most commonly reported using LearnAlberta.ca monthly (31%) or a few times a year (30%), similar to Tools4Teachers.ca (26% monthly, 28% a few times per year).
- Resources that are commonly used only a few times a year include LearnAlberta.ca (30%), Tools4Teachers.ca (28%), a support resource (i.e., Guide to Implementation) (26%), and online video/podcasts (26%). The majority of respondents report never using wikis (67%), online social networking sites (64%) or correspondence course packages (63%).
- Overall, it would appear that print materials are used more frequently (daily or weekly), while Internet resources appear to be used monthly or less often.

Table 11

For each of the following learning and teaching resources, please indicate how often you use them in your teaching practice.

	Daily	Weekly	Monthly	A Few Times a Year	Only One Time	Never
Print						
Textbooks (n = 1488)	49%	25%	6%	12%	0%	7%
Other print materials (n = 1370)	45%	33%	11%	8%	0%	3%
Support Resource (i.e., Guide to Implementation) (n = 1402)	13%	30%	22%	26%	2%	7%
Correspondence course packages (n = 1261)	8%	6%	5%	14%	4%	63%
Internet						
Other online resources (n = 1389)	20%	39%	23%	14%	1%	3%
Online social networking sites (n = 1037)	5%	8%	8%	11%	4%	64%
Online video/podcasts (n = 1210)	4%	17%	18%	26%	5%	30%
LearnAlberta.ca (n = 1438)	3%	24%	31%	30%	4%	9%
Tools4Teachers.ca (n= 1333)	2%	15%	26%	28%	7%	22%
Wikis (n = 1035)	2%	6%	9%	13%	4%	67%
Miscellaneous						
CDs/DVDs (n = 1426)	8%	31%	35%	21%	2%	4%
Other (n = 530)	13%	14%	16%	13%	3%	41%

Additional analysis revealed that respondents who are not currently involved in distributed learning were more likely to report that they never used the following resources in their teaching practices:

- correspondence course packages
- online social networking sites
- wikis
- online videos/podcasts.

Also, respondents who have been involved in distributed learning for one to two years are more likely to report that they never use wikis compared to those who have been involved in distributed learning for more than five years.

Use of Alberta Education Resources

When asked if they have accessed any learning and teaching resources specifically from Alberta Education, three out of four respondents of the online survey (75%) indicated they had. These respondents were asked to rate the quality of Alberta Education resources in a variety of areas. (See Table 12.) Overall, the results are positive, with 86% reporting that the content is excellent or good, and 78% reporting that the instructional design/pedagogy is excellent or good. About two-thirds reported the graphics/overall visuals are excellent or good (68%), 60% reported that student engagement in the resources is excellent or good, and 56% report the resources have excellent or good accessibility. Note that while these results are positive, the majority of respondents indicated that the resources were 'good' in these areas while only 7%–22% rate these resources as "excellent."

Table 12

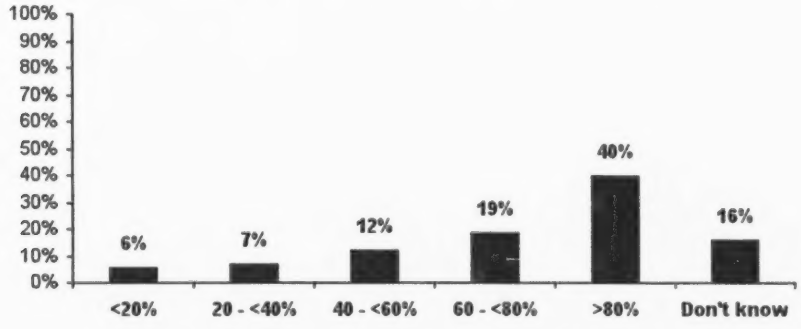
On average, how would you rate the quality of Alberta Education resources for each of the following ares? (n=1295–1306)

	Excellent + Good	Excellent	Good	Fair	Poor	Don't Know
Content	86%	22%	64%	10%	2%	1%
Instructional design/pedagogy	78%	15%	63%	15%	3%	3%
Graphics/overall visuals	68%	11%	57%	23%	5%	5%
Student engagement	60%	7%	53%	30%	6%	4%
Accessibility	56%	9%	47%	24%	7%	13%

Of those respondents who accessed resources from Alberta Education, 40% indicated that Ministry-approved resources make up at least 80% of all the learning and teaching resources they use, while about one in five (19%) indicated that 60% to less than 80% of the resources they use are Ministry-approved. (See Chart 11.)

Chart 10

Of all of the teaching and learning resources that you use, approximately how what percentage of them are Ministry-approved resources? (n=1314)



Use of Third-Party Resources

Approximately three in four respondents of the online survey (74%) have accessed learning and teaching resources from third-party vendors. This result is very similar to the proportion who indicated they have accessed resources from Alberta Education. These respondents were asked to rate the quality of the resources in a variety of areas. (See Table 13.) Overall, results are very positive, with almost all respondents reporting that the content is excellent or good (91%), 86% reporting the graphics/overall visuals are excellent or good, 83% reporting the engagement is excellent or good, 82% reporting the instructional design/pedagogy is excellent or good, and slightly fewer respondents (62%) reporting that the accessibility of these third-party resources is excellent or good. Similar to the resources accessed from Alberta Education, the majority of respondents tend to indicate the resources are 'good' in these areas, while only 13%–29% rate these resources as 'excellent.'

Table 13

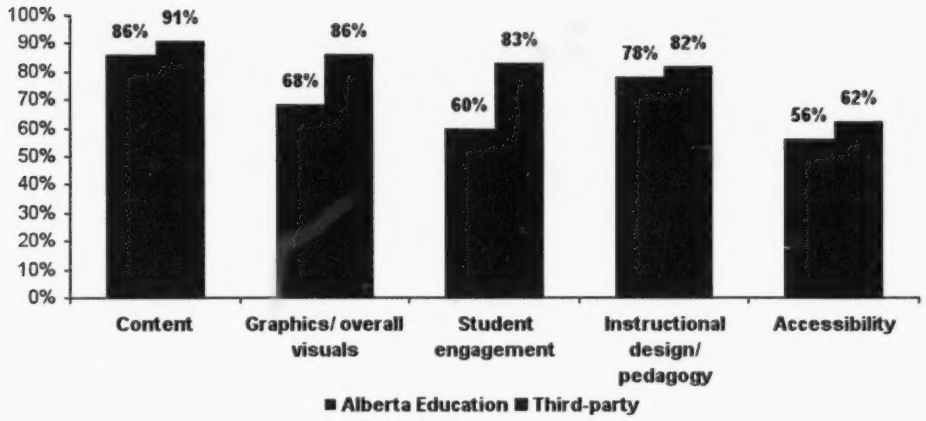
On average, how would you rate the quality of these third-party vendors in each of the following areas? (n=1281–1296)

	Excellent + Good	Excellent	Good	Fair	Poor	Don't Know
Content	91%	27%	64%	9%	0%	0%
Graphics/overall visuals	86%	29%	56%	12%	1%	1%
Student engagement	83%	22%	60%	15%	1%	1%
Instructional design/pedagogy	82%	19%	63%	17%	1%	1%
Accessibility	62%	13%	49%	23%	6%	9%

As shown in Chart 12, the results for the quality of resources from third-party vendors appear to be slightly higher in most areas than those from Alberta Education, particularly for graphics/overall visuals and student engagement.

Chart 11

Percentage of Excellent + Good for Learning and Teaching Resources



Use of Distributed Learning Resources

As shown in Table 14, approximately one in five respondents of the online survey (21%) estimate that at least 60% of teachers in their school use distributed learning resources on at least a weekly basis, while approximately half (49%) estimate that less than 60% of teachers in their school do the same. It should be noted that 30% of respondents report that they do not know how many teachers in their school use distributed learning resources at least weekly.

Table 14

Approximately what percentage of teachers in your school would you estimate use distributed learning resources on at least a weekly basis? (n=1743)

	Number of Responses	Percentage of Responses
<20%	407	23%
20%–39%	242	14%
40%–59%	204	12%
60%–79%	138	8%
>80%	231	13%
Don't know	521	30%

In general, it would appear that respondents who are currently involved in distributed learning have higher estimates of teacher involvement in distributed learning. This is especially true for those respondents who have been involved for a longer period of time.

As shown in Table 15, approximately one in five respondents (23%) estimate that at least 60% of students in their school use distributed learning resources in an average week, while approximately half (48%) estimate that less than 60% of students in their school do the same. It should be noted that 28% do not know how many students in their school use distributed learning in an average week.

Table 15

Approximately what percentage of students in your school would you estimate use distributed learning resources in an average week? (n=1743)

	Number of Responses	Percentage of Responses
<20%	407	23%
20%–39%	245	14%
40%–59%	191	11%
60%–79%	147	8%
>80%	266	15%
Don't know	487	28%

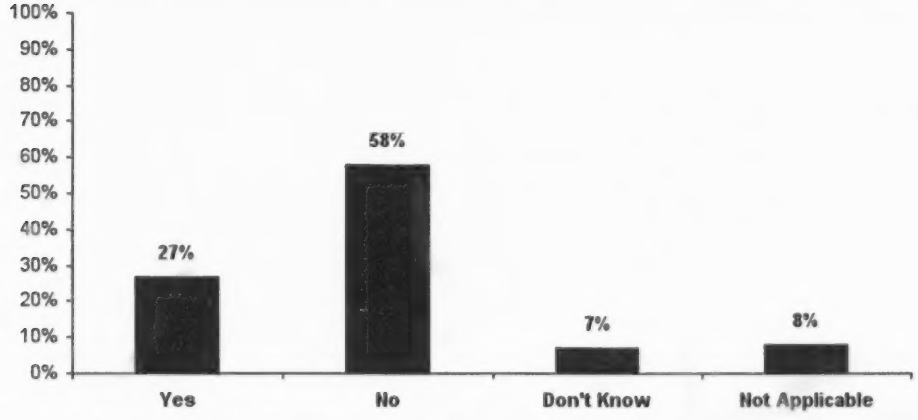
In general, it appears that respondents who are currently involved in distributed learning tend to have somewhat higher estimates of student involvement in distributed learning. This is especially true for those respondents who have been involved in distributed learning for a longer period of time.

Involvement in Resource Development

As shown in Chart 13, over half of the respondents of the online survey (58%) have not been a developer of learning and teaching resources while 27% have developed learning and teaching resources.

Chart 12

Have you been a developer of learning and teaching resources? (n=1758)



Additional analysis revealed that respondents who are currently involved in distributed learning are more likely to have been developers of learning and teaching resources. Also, the longer a respondent has been involved in distributed learning, the more likely they are to have been a developer of learning and teaching resources.

Type and Currency of Resources Developed

Respondents who indicated they had developed learning and teaching resources were asked a series of questions regarding resource development. (See Tables 16 through 20.)

Those who have developed resources most commonly reported developing course manuals in print (45%). (See Table 16.) A further look at the results revealed that 42% of those who are currently involved in distributed learning also have developed course manuals in print, while 49% who are not currently involved in distributed learning also have developed course manuals in print. Other resources that were developed include websites (29%); distance learning courses, modules and/or lessons (digital, 25%, and print, 20%), multimedia (i.e., Flash objects) (24%) and videos (20%).

Note that about one in four respondents (24%) mentioned some 'other' type of resources. Responses in the 'Other' category are varied, but include resources such as curricula, study guides, lesson plans, and assessment tools to name a few.

Table 16

What resources have you developed? (n=467)

Resource	Number of Responses	Percentage of Responses
Course manuals, print	209	45%
Website(s)	135	29%
Distance learning courses, modules, and/or lessons – digital	115	25%
Online multimedia	113	24%
Distance learning courses, modules, and/or lessons – print	93	20%
Videos	92	20%
Course manuals – digital	85	18%
Reference Databases	55	12%
Simulations	42	9%
Wikis	36	8%
Other	114	24%

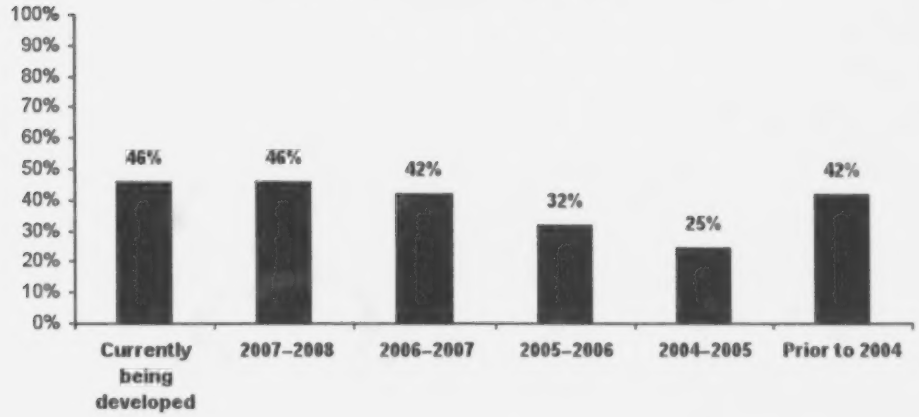
Additional analysis revealed that, as compared to respondents who are not currently involved in distributed learning, those who are currently involved in distributed learning are more likely to have developed:

- digital distance learning courses, modules and/or lessons
- print distance learning courses, modules and/or lessons
- videos
- online multimedia
- websites

As shown in Chart 14, approximately half of the respondents indicated that these learning and teaching resources are currently being developed (46%) or were developed during the 2007/2008 school year. This is a slight increase from the 2006/2007 school year (42%).

Chart 14

When were these resources developed? (n=465)



Recipients of Resources

The majority of the respondents developed resources for their program/students (69%). (See Table 17.) Colleagues (41%) and jurisdiction/school authority (35%) round out the top three common recipients of these resources. Note that one in five (20%) develop resources for Alberta Education.

Table 17

For whom have you developed these resources? (n=466)

	Number of Responses	Percentage of Responses
My program/students	322	69%
My colleagues	192	41%
My jurisdiction/school authority	162	35%
Alberta Education	94	20%
Community	21	5%
Other	57	12%

Additional analysis revealed that respondents who are currently involved in distributed learning are more likely to report that the resources they developed are for their program/students.

Intended Grade Level/Group

As shown in Table 18, older students are more likely to be the intended group for developing resources. Specifically, about half of the respondents (51%) developed their resources for grades 10 to 12, while 41% intended their resources to be used by students in grades 7 to 9. About one-third of respondents (30%) developed resources for those in grades 4 to 6, and only 20% developed resources for those in ECS to grade 3. Respondents were much less likely to develop resources for those in special education (7%) or for the community (5%).

Table 18

For what level/group were the resources developed? (n=465)

Category	Number of Responses	Percentage of Responses
ECS to Grade 3	92	20%
Grades 4 to 6	138	30%
Grades 7 to 9	189	41%
Grades 10 to 12	239	51%
Special Education	33	7%
Community	23	5%
Other	34	7%

Respondents who are currently involved in distributed learning are more likely to report that the resources they develop are for students in grades 10 to 12.

Source of Funding

Funding for resource development came from a variety of sources, with school budgets (33%) being the most common. (See Table 19.) Other common sources of funding were program budgets (23%), the district (21%), an AISI project (21%), or some other Alberta Education project (17%). One in four respondents (25%) mentioned some 'other' type of funding source; and of these sources, respondents most often mentioned that funding often came out of their own pockets; e.g., personal finances, working extra hours, during the summer months.

Table 19

Who paid for the resources developed? (n=460)

Response Category	Number of Responses	Percentage of Responses
School budget	152	33%
My program budget	108	23%
District	96	21%
AISI Project	95	21%
Other Alberta Education project	78	17%
Other	115	25%
Don't know	23	5%

Respondents currently involved in distributed learning were more likely to report that the school budget paid for resource development. Also, those who have been involved in distributed learning for more than five years are most likely to report that the school budget paid for resource development.

Extent and Effectiveness of Collaboration

Approximately two out of three respondents to the online survey (68%) reported that the resource development was a collaborative effort. (See Chart 15.) Of those who reported that the resource development was a collaborative effort, 94% indicated that the collaboration was among teachers, 29% indicated that it was among schools, and 26% indicated that it was among school jurisdictions/ authorities. (See Chart 16). Of those who reported the collaborative effort was among school jurisdiction/authorities, one in three (33%) also collaborated with government.

Chart 14

Was the resource development a collaborative effort? (n=464)

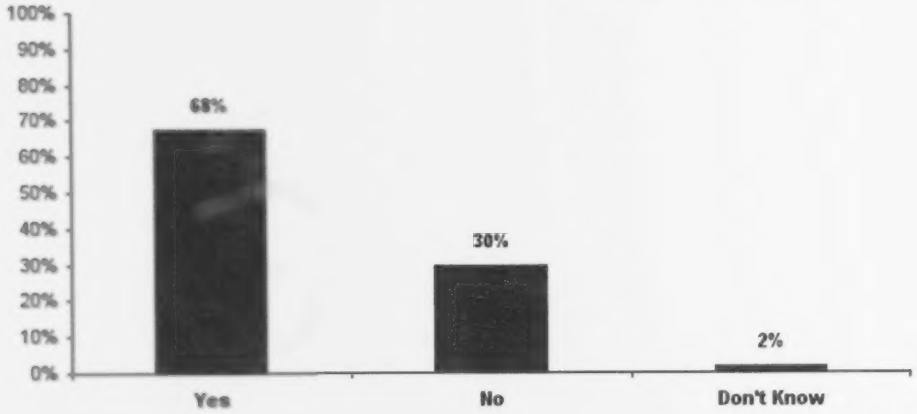
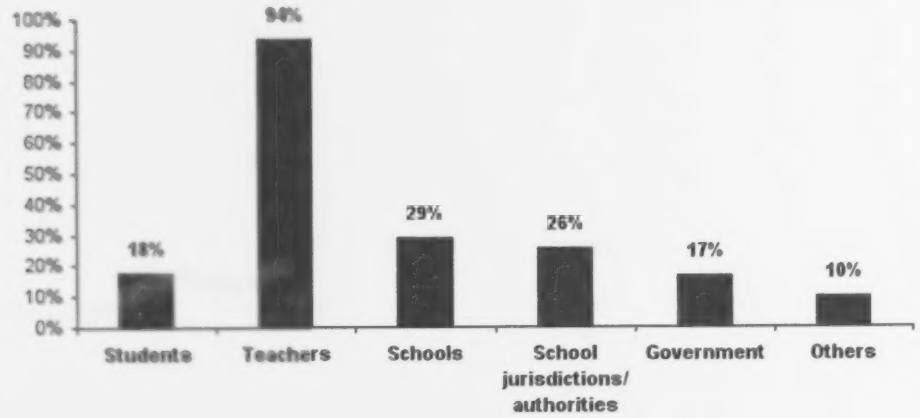


Chart 15

Please indicate who the resource development was a collaborative effort among. (n=316)



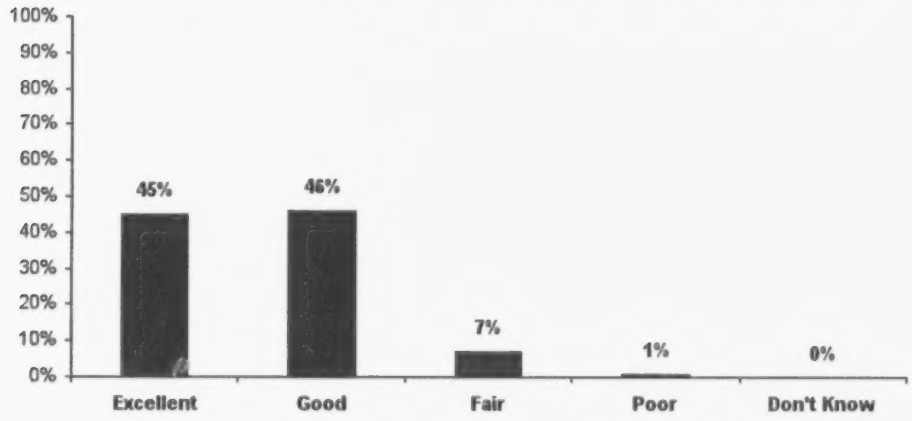
Additional analysis revealed that respondents who have been involved with distributed learning for less than one year or for three or more years are the most likely to report that they collaborate with students. Those who have been involved one year or more are the most likely to report that they collaborate with school jurisdictions/authorities.

Overall, of those respondents who collaborated to develop the resources, the large majority rates the effectiveness of the collaboration as either excellent (45%) or good (46%). (See Chart 17 below.)

Additional analysis revealed that respondents who have been involved in distributed learning for less than one year are more likely to rate the effectiveness of the collaboration as excellent (and less likely to rate it as good), compared with those with three to five years of involvement in distributed learning.

Chart 16

How would you rate the effectiveness of the collaboration? (n=314)

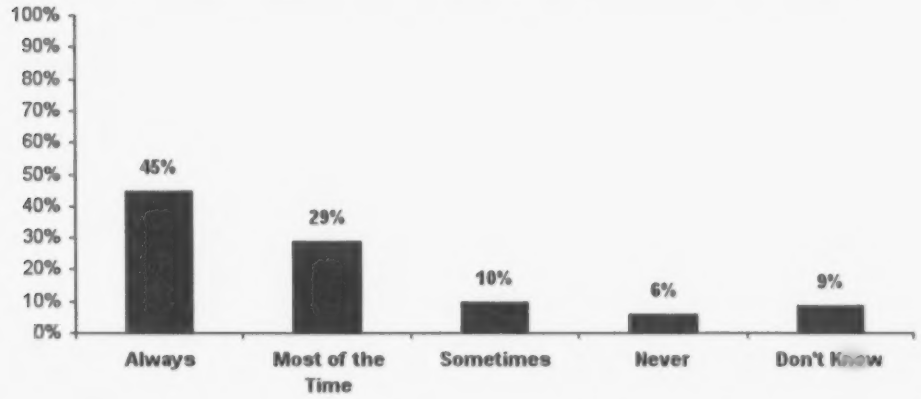


Standards in Developing Resources

About half of all respondents (47%) reported that there should be minimum provincial standards, specifically for the development of distributed learning resources, while 20% said no and 33% reported that they do not know if there should be minimum provincial standards. Chart 18 shows that the majority of respondents always (45%) or most of the time (29%) adhere to standards, requirements, or guidelines.

Chart 17

In your experience developing resources, how often were you required to adhere to development standards, requirements or guidelines? (n=464)



Those respondents who always, most of the time, or sometimes followed standards were asked in which areas—content, instructional design/pedagogy, accessibility, technical specifications, style guide and graphics, and/or copyright—the standards applied. (See Table 20.)

Respondents most commonly reported following provincial standards with regard to content (87%), instructional design/pedagogy (60%), accessibility (50%) and copyright (62%). Respondents most commonly reported following school standards with regard to style guide and graphics (47%), accessibility (47%), technical specifications (46%) and instructional design/pedagogy (45%).

Table 20

In which of the following areas did you follow school, school authority, provincial, or other standards? (n=327–384)

Standard	School Standards	School Authority Standards	Provincial Standards	Other
Content	36%	28%	87%	3%
Instructional design/pedagogy	45%	33%	60%	9%
Accessibility	47%	34%	50%	9%
Technical specifications	46%	34%	43%	11%
Style guide and graphics	47%	28%	35%	16%
Copyright	30%	30%	62%	19%

Additional analysis revealed that respondents who are currently involved in distributed learning reported that they followed school standards with respect to instructional design/pedagogy, technical specifications, style guide and graphics, and copyright. Those who have been involved in distributed learning for three to five years were more likely to follow school standards with respect to accessibility than those who have been involved for one to two years. However, those involved in distributed learning for three to five years were less likely to follow provincial standards with respect to instructional

design/pedagogy than those with one to two years. Those with less than one year of involvement were more likely to follow provincial standards with respect to accessibility than those with three years or more. Lastly, respondents with one year or more of involvement were the most likely to follow school authority standards with respect to style guide and graphics.

Copyright Issues Getting Worse

Many curriculum coordinators, teachers, principals and professional development providers indicated that the move from published textbooks to online publishers' websites is making access to resource material significantly more difficult.

They stated that copyright licenses are too costly and too time demanding to negotiate. Suggested solutions recommended by curriculum coordinators were as follows:

- standardize resource development, since current duplication of resource development is resulting in excessive costs for copyright licenses and hardware/software resources
- *"develop an agreement with publishers for a subscription to use everything they produce online"* (Curriculum Coordinators Focus Group)
- universally approve content resources
- lobby for the revision of the copyright law to reflect the current reality of textbook publishers' expansion into online content marketing and development.